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ABSTRACT

Goals and outcomes in various fields of professional education are considered. Attention is directed to generic outcomes of professional preparation, the emphasis these outcomes receive among professional educators, some problems that concern professional educators, and recommendations for future action and study. The generic outcomes, which were derived from existing literature about professional education, include six aspects of professional competence: conceptual competence, technical competence, contextual competence, interpersonal communication competence, integrative competence, and adaptive competence. Also considered are five attitudinal outcomes: career marketability, professional identity, professional ethics, scholarly concern for improvement of the profession, and motivation for continued learning. The issues and trends concerning these outcomes were drawn primarily from recent articles in educational journals of 12 professional fields: architecture, business administration, dentistry, education, engineering, journalism, law, library science, medicine, nursing, pharmacy, and social work. Information was also obtained from a survey of faculty in 10 professional fields with respect to their emphases on preferred outcomes and educational activities. Information on the research methodology is appended. (SW)

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Responsive Professional Education:
Balancing Outcomes and Opportunities

by Joan S. Stark, Malcolm A. Lowther, and
Bonnie M.K. Hagerty

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EXECUTIVE SUMMARY

Enrollments in college programs that prepare students for professional occupations remain strong. At the undergraduate level, they now have surpassed enrollments in liberal studies programs. It seems clear that students will continue to select collegiate programs with promise of professional employment, yet many educators believe such programs are inappropriately narrow and specialized. In truth, few attempts have been made to examine the intended outcomes of professional preparation programs to determine whether these beliefs are justified. An initial step in bringing educational philosophies and curricular outcomes into better alignment is to clarify the goals and dilemmas of educators in professional programs. Is it true that professional educators concentrate on technical skills and devalue broader aspects of their students' education? If so, is this posture more characteristic of some fields than of others? What commonalities and distinctions of professional preparation programs are most important for faculty members and administrators to understand? Can better understanding of common issues faced by professional educators help identify ways in which faculty and administrators can foster educationally effective interprogram collaboration? What research models, with appropriate modifications, can be used to explore the achievement of outcomes in diverse professional programs?

While this report does not answer all of these important questions, it takes a first step toward improving understanding of intended outcomes in various fields of professional preparation by identifying several competences and attitudes that are generic outcomes of professional study, by exploring the emphasis professional educators believe should be placed on these outcomes, by summarizing outcome-related issues and trends common to professional education in diverse fields, and by providing some recommendations for the future.

The generic outcomes described in the report were derived from existing literature about professional education. They include six aspects of professional competence—conceptual competence, technical competence, contextual competence, interpersonal communication competence, integrative competence, and adaptive competence—and five attitudinal outcomes—career marketability, professional identity, professional ethics, scholarly concern for improvement of the profession, and motivation for continued learning.

The issues and trends concerning these outcomes identified in the report are drawn primarily from recent articles in the educational journals of 12 professional fields: architecture, business administration, dentistry, education, engineering, journalism, law, library science, medicine, nursing, pharmacy, and social work.

The synthesis of the literature should be helpful to three audiences: (1) college and university administrators seeking better comparative understanding of professional preparation programs; (2) professional program and liberal arts faculty members desiring to facilitate interprogram collaboration; and (3) researchers seeking to address a variety of related issues, particularly documentation of the outcomes of professional study.

What Aspects of Professional Competence Are Educators Discussing?

Professional educators devote considerable attention to field-specific aspects of professional competence, such as foundational knowledge and technical skills. Yet, within these two areas, educators in diverse fields are addressing some common issues. All fields are reviewing program purposes, curricular validity, the role of foundational courses, and the volume of conceptual and technical material students must learn. Such reviews have common origins in the rapid growth of specialized knowledge, changing practice roles, including application of new technologies and response to new socioeconomic conditions, and increasing responsiveness to a broader range of clients. Across fields, concern also is apparent for better ways to cultivate cognitive problem-solving skills.

Although literature in the educational journals more heavily emphasizes the development of technical competence, faculty members in professional fields judge technical competence of graduates to be slightly less, rather than more, deserving of emphasis than conceptual competence. Additionally, faculty strongly believe that students should understand the social, cultural, and economic context within which professional practice occurs. While such a contextual emphasis is more widely espoused in "helping" and "informing" professional programs than in "enterprising" programs (like business, architecture, and engineering), all fields are questioning whether traditional liberal arts is the best curricular vehicle for its achievement. Particularly as they attempt to serve diverse client populations, the helping and informing programs are rapidly infusing social science content into their professional courses to ensure its relevance to professional concerns. Although traditional written and oral communication remains important, communication skills required of new professionals now are conceived more broadly to include interpersonal relations with colleagues and relationships with clients. In four-year undergraduate fields where expansion of the knowledge base has already crowded the curriculum, this desire for broad education is difficult to implement.

In all fields, the nature and function of simulated or real experiences that assist students to integrate concepts, skills, contextual knowledge, and interpersonal skills into competent professional judgments are being actively debated. Fields with formal field experiences are grappling with similar problems of supplying appropriate field supervision, ensuring adequate role modeling, providing feedback to students, and maintaining good relationships with practitioners. Discussion of these curricular management issues appears to overshadow the need to define more clearly the outcomes of field and clinical placements. Perhaps because little is known about the learning process through which integration takes place, professional educators seem to link quite loosely the processes and intended outcomes of integrative field experiences.

Professional educators recognize rapid technological change that affects classroom teaching as well as practice settings. Nonetheless, discussions about integrating various components of professional education have not yet fully focused on the need to help students understand that they will be responsible for adapting professional practice to future societal changes. As technology develops, simulations increasingly may help bridge the gap between classroom and real world settings and the gap between current and future practice.

What Aspects of Professional Socialization Are Educators Discussing?

Development of accepted professional attitudes and commitment, that is, professional socialization, is of greatest concern to educators in health and in human and information service fields and of less importance to educators in fields like architecture, business, engineering, and law. Even when professional educators express strong interest in fostering attitudes like long-term career awareness, professional identity, and ethical standards, discussions primarily focus on providing opportunities for these attitudes to develop. Articulating and measuring such attitudes are discussed very little. Nonetheless, some professional fields can provide useful examples for other educators. To illustrate, educators in dentistry, accounting, and social work are developing new models of career guidance; nursing educators pay particular attention to making preservice students aware of needs for continuing education and research to improve professional practice.

Writers in professional education journals exhort their colleagues concerning the need for students to internalize accepted ethical standards. Despite such rhetoric, little consensus is apparent in most fields about what these standards are and how best to teach them. Social work, nursing, and law educators feel they have incorporated professional ethics in their curricula, but at the same time, law educators as well as journalism and business administration educators believe agreed-upon standards or codes do not exist.

Recommendations for the Future

This literature review and survey of professional education faculty found little evidence to support the view that educational outcomes are narrow in intent. To the contrary, professional education faculty are struggling to maintain, and even to initiate, curricular breadth that is relevant to developing professionals. Strong concerns about continually increasing curricular volume and related time constraints are coupled with a sense of unrest regarding the contribution of both traditional liberal arts courses and traditional professional foundations courses. Thus, opportunities are excellent for interprogram collaboration, particularly in courses that convey to students the importance of the social context in which the professions are practiced, the anticipated effect of technology on professional practice, and the need for broader interpersonal communication skills. College administrators should encourage such discussions of collaboration, as well as frank exchanges among liberal and professional education faculty about mutual needs and services. Joint problem solving among professional educators and between liberal arts and professional faculty may be productive in devising solutions to mutual problems of integrating theory and practice and in articulating more effectively the outcomes and processes generally thought of as professional socialization.

Several outcomes of professional education seem amenable to measurement. Yet because measurement largely has been restricted to field-specific conceptual and technical competence, professional educators seem to have foregone opportunities to demonstrate successful achievement of broad educational goals. The generic outcome framework used in this synthesis of the literature provides one vehicle that groups of professional educators might use for badly needed comparative research.

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FOREWORD

Recent blue ribbon commission reports have criticized higher education, especially the curriculum. What is the curriculum? Is the curriculum "a set of independent courses taught by independent professors held together only by a central heating system and a common complaint about parking," as has been alleged? Perhaps a more accurate definition is "a reflection of the needs of society?" A more honest attempt is to define the curriculum simply as "the faculty." It has also been described more broadly as the total educational experience of attending an institution of higher education and more narrowly as the combination of courses taken in fulfillment of a particular degree. Which definition is most accurate? Probably none; possibly all. Like the four blind men with the elephant, there are as many definitions as points of view. Frederick Rudolph described the higher education curriculum as well as anyone when he said:

> *"Values change and so does the curriculum, as the more than 300 years since the founding of Harvard College clearly say. Since that time long ago, when a peculiarly self-demanding band of alienated Englishmen got themselves a college almost before they had built themselves a privy, change in the course of study has been constant, conscious and unconscious, gradual and sudden, accidental and intentional, uneven and diverse, imaginative and pedestrian."*

Regardless of how we define the curriculum of higher education, the undeniable fact is that over the last decade, students have dramatically shifted their educational preference from liberal arts to the professions, as shown by the table on the following page.

Whether the students are choosing professional fields over liberal arts as a reflection of the rising cost of higher education and therefore the increasing dependence on bank loans to finance it, or simply as a reflection of the increasingly rigorous requirements for entry-level positions in our computerized, technological society is not an issue here. What is important is that this shift has occurred. And shows no signs of abating.

It is therefore important to have an understanding of the curriculum of the professions in order to make informed

Bachelor's Degrees Conferred by Institutions of Higher Education

Program Areas	*1973–74*	*1983–84*	*% Change*
Business and Management	131,766	230,031	75%
Communications	16,250	38,586	131
Computer and Info Science	4,756	32,172	576
Education	185,225	92,382	– 50*
Engineering	42,840	75,732	77
Foreign Languages	18,840	9,479	– 50
Health Sciences	41,394	64,338	55
English	55,469	33,739	– 39
Library and Archival Sciences	1,164	255	– 78
Life Sciences	48,340	38,640	– 20
Mathematics	21,635	13,211	– 39
Philosophy and Religion	9,444	6,435	– 32
Physical Scienes	21,178	23,671	12
Psychology	51,821	39,872	– 23
Social Sciences	150,298	93,212	– 38

*Minus sign indicates decline

Source: U.S. Dept. of Education, 1985

judgments about the quality of specific programs and higher education in general. This report, written by Jaon Stark, professor of higher and adult continuing education at the University of Michigan and director of the National Center for Research to Improve Postsecondary Teaching and Learning (NCRIPTAL), Malcolm Lowther, professor of higher and adult continuing education at the University of Michigan and research associate at NCRIPTAL, and Bonnie Hagerty, a doctoral candidate in higher education and nursing at the University of Michigan, reviews the similarities and differences of the curricula for twelve professional fields. After reviewing well over 300 publications, the authors divide their study into professional competences and professional attitudes.

In this analysis of six professional competences and five attitudinal outcomes, the authors not only examine the purposes for and successes or failures of professional education programs, but raise the larger issue of evaluating competence and measuring outcomes for other curricula. This monograph provides administrators with an understanding of the frustration felt by faculty members trying to fit all the necessary requirements for a professional degree into the allotted time-frame. It also gives faculty a clear understanding of the major issues and relative importance paid to each one in similar professional programs nationwide. Effective professional education is important because of the impact professionals have on our society. And as the educational preference chart shows, professional education programs are becoming the foundation of more and more institutions of higher education.

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NEW PERSPECTIVES ON A CONTINUING DILEMMA

The Diversity of Professional Study

A focus on outcomes of professional preparation is particularly timely. Enrollments in programs that prepare students for professional occupations have remained strong for years. At the undergraduate level, they now have surpassed enrollments in liberal studies programs, and for the foreseeable future students likely will continue to select collegiate programs that hold promise of challenging employment. In 1984 a study group commissioned by the National Institute of Education (NIE), judging undergraduate professional preparation to be narrow and to overemphasize specialized or technical education, called for increasing attention to assessment of outcomes (NIE 1984). A second national report also criticized narrow specialization but held forth the possibility that a professional education could, if properly directed, be a liberal education as well (Association of American Colleges 1985). In general, these recommendations and the subsequent discussions have tended to bypass dialogue among educators in the specific professional fields. Critics have devoted little time to actually examining professional preparation yet have made assertions about the processes and outcomes of professional-type study that cry out for substantiation. This report takes a first step toward improved articulation of goals and outcomes in various fields of professional preparation by (1) identifying generic outcomes of professional preparation, (2) exploring the emphasis these outcomes receive among professional educators, (3) summarizing some problems that concern professional educators, and (4) providing some recommendations for future action and study.

Enrollments in programs that prepare students for professional occupations . . . now have surpassed enrollments in liberal studies programs. . . .

The Potential for Collaboration and Cooperation

This report was written for three audiences: (1) college and university administrators who wish to achieve better comparative understanding of professional preparation programs; (2) professional program and liberal arts faculty who desire to understand issues and trends in professional fields; and (3) researchers who may be encouraged to address a variety of important related issues, such as balancing liberal and professional study, integrating theoretical and practical education, developing more sensitive program review criteria, or fostering cooperative efforts within universities.

Previous AAHE-ERIC Higher Education Research Reports (Anderson 1974; Nyre and Reilly 1979) dealt with the topic of professional education. According to the 1974 report, "In spite of a significant literature in the various fields of professional education, the process of becoming educated in the professions has received limited attention. . . . Comparative studies, discussion of common policies and practices . . . are rare" (Anderson 1974, p. 1). Drawing from the sociological literature to define "profession," the 1974 report compared, across educational programs, processes such as student selection, curriculum, instruction, and student socialization as well as the relation of professional schools to society, institutions, and accreditors. Data presented documented the increasing numbers of workers in professional occupations and the emerging trend for baccalaureate education to be concerned with professional preparation.

The 1979 report reviewed literature defining a profession and took the pragmatic stand that professional education was "an amorphous conglomerate" not easily defined except by the existence of educational programs directed at entrance to certain occupations (Nyre and Reilly 1979). Accepting this ambiguity, the authors updated the 1974 work by reporting research on admissions, the professional school experience, curricular development, labor market prospects, continuing education, and accreditation. Finally, they provided recommendations for the future of professional education, stressing both evidence of and need for integrating the theoretical and the practical and increasing cooperation across professional education programs. These two foci were believed to be influences that would command the attention of professional schools in the eighties, replacing the emphasis on expansionism of the seventies.

As Nyre and Reilly predicted, the integration of theory and practice has become a focal point of discussion in the eighties. For example, recommendations for improved integration have been made directly in several self-study reports issued by the professional fields themselves (American Bar Association 1980; American Pharmaceutical Association 1984; Association of American Medical Colleges

1984) and more obliquely in general reports like *Integrity in the College Curriculum* (Association of American Colleges 1985). Since this literature review was begun, prominent educational statesmen have stressed the potential benefits of integration across the liberal and professional study areas as well as within professional programs (Curtis 1985; Rhodes 1985). Indeed, as such scholars point out, to advocate that the liberal and professional spheres of education should be separated may be based on a lack of realism about today's societal context.

Although conditions during the 1980s certainly have presented the challenge for cross-program cooperation among professional fields that Nyre and Reilly foresaw, discussion devoted to this issue has been less obvious. As resources have become increasingly scarce, undoubtedly some colleges and universities have examined the possibilities of interprogram cooperation as a preferred method of retrenchment and reallocation of resources. In many cases, however, decision makers have moved directly to program closure as the most feasible and expeditious solution to budgetary problems. The failure of professional program personnel to recognize possibilities for collaboration and the need of administrators to move forward rapidly to reduce budgets have foreclosed some opportunities for interprogram cooperation.

Furthermore, efforts to allocate resources have been conducted without benefit of comparative research, which could assist professional program faculty and administrators in understanding commonalities and differences in programs. Clearly, programs independently seeking to collaborate, or mandated to do so, need to strive for enhanced understanding. And review criteria used by administrators to assess program dimensions like centrality, quality of faculty and graduates, work opportunities for graduates, and cost-effectiveness depend on the decision makers' best efforts to understand the program's special goals, emphases, and curricular dilemmas.

A parallel may be drawn between potential outcomes of failure to develop communication across fields of professional study within universities and failure to develop cultural understanding of other countries with whom we must cooperate in a global society. To extend the analogy further, just as citizens misunderstand the intent of those who do not share their customs, faculty members and administrators may unwittingly apply review criteria derived from a few high-demand fields to other fields where they are less appropriate. In short, neither cross-program cooperation nor program review decisions have benefited from research-based attempts to discover the similarities and differences across various professional fields.

Both previous Higher Education Research Reports mentioned the broad range of published educational literature applying to each professional field, but they more frequently summarized material from secondary sources or comparative syntheses. Both covered a wide range of topics, treated them briefly, and provided valuable resources to the administrator or researcher seeking a broad introduction to professional education. The literature synthesis in this report was begun to develop a deeper understanding of the educational issues and challenges that face diverse professional preparation programs.

This report uses two approaches to explore the outcomes of professional preparation and the strategies used to achieve them. The primary approach is an integrative review of the literature relating to professional preparation. A secondary approach uses preliminary results of a survey of faculty in 10 of the 12 professional fields with respect to their emphases on preferred outcomes and educational activities. First, however, it is necessary to apprise the reader of what is meant by "professional preparation" and a notion of the size of this enterprise in American higher education.

What Is a Professional Preparation Field?

Progress toward better understanding and improvement of education dictates that we deal with what society views as reality rather than with scholarly abstractions. This report therefore considers programs that are at least four years in length and frequently referred to as "professional" in everyday campus parlance (to separate them from the study of nonoccupationally directed liberal arts programs).

Most students attending a college or university program in nursing, business, or engineering, to name only a few fields, see themselves as enrolled in professional preparation programs. Similarly, most faculty members teaching in fields that attempt to relate theory to practice and that have reasonably well-defined occupational entrance points for graduates see themselves as professional program faculty (although of the fields to be discussed, journalism educators are least likely to accept the idea that they teach in a "professional program"). In casual campus conversation, college and university administrators refer to programs that consume four or more years of students' time and are directed at a designated area of employment as "the professional programs or schools." And when liberal arts colleges debate the appropriateness of adding "professional programs," the studies under consideration typically are business, teacher education, social work, journalism, or computer science. Thus, although it is recognized that the term "professional" frequently evokes a legitimate definitional debate, the term is used in this report in this common sense.

Previous research reports have dealt at length with the dimensions of the debate surrounding use of the term "professional" as applied to educational programs (Anderson 1974; Nyre and Reilly 1979). Briefly, the debate stems from several sources: (1) an extensive scholarly literature that has attempted to define a profession; (2) a definition used by the U.S. Department of Education in its Higher Education General Information Survey (HEGIS) that restricts the term "first professional degree" to postbaccalaureate degrees granted in theology, law, medicine, dentistry, pharmacy, and a few other health-related fields; and (3) recruitment concerns of colleges that cause them to label their programs as professional, or to avoid the term, depending upon the image they desire to project. Authoritative sources such as the Carnegie Foundation (1977) and the NIE study group (1984) recently ignored all of these issues, the Carnegie Foundation stressing increasing enrollments in a large group of undergraduate programs they termed professional and the NIE study group criticizing as unduly narrow a seemingly extensive group of undefined undergraduate professional programs offered by colleges.

What, then, is "professional"? Having considered and rejected several synonyms, the authors concluded that "professional" is the most efficient term, encompassing as it does the understanding and curricular assessment of heavily enrolled college programs that lead to occupations in fields commonly viewed by the public as professional.

As this report emphasizes academic collegiate-level work, the authors chose to use the term "professional preparation" rather than "professional education," which may imply no skill component, or "professional training," which may imply skill development at the expense of theoretical learning (Anderson 1974). The term "professional preparation" is intended to encompass the totality of professional study—learning academic concepts, learning necessary professional skills, integrating concepts and skills, and becoming socialized into the profession.

In addition to casting a broad net at the undergraduate level, the authors used the term "entry-level" or "preservice" professional preparation to include as well traditional professional programs that historically have followed the baccalaureate degree. This decision was based on two factors, one pragmatic and one more idealistic.

Pragmatically, the distinction between undergraduate and graduate professional education has become very fuzzy, and "whenever one tries to delimit the range of graduate education, one is likely to discover that the exceptions overwhelm the rule" (Millard 1984, p. 41). Some universities, for example, offer social work, library science, and business administration as undergraduate programs; others offer these fields only at the graduate level. Despite exhortations to the contrary, the student pursuing any of these graduate-level specialties is not guaranteed to have completed a broad program of liberal study while an undergraduate. Students have long had the option of applying to law or dental school without completion of a baccalaureate degree, pharmacy education has recently been extended in length, and a national campaign is being waged to extend initial education for teacher preparation into the graduate years. At the other end of the spectrum, some universities are experimenting with shortened premedical/ medical curricula that integrate and encompass liberal and professional training. Given the wide variety of patterns in American higher education, some believe it more productive to soften the outdated barriers between traditional levels than attempt to make the definitions clearer but potentially more rigid (Albrecht 1984, p. 19).

More idealistically, professional programs that traditionally have followed a period of general or liberal education can contribute vast experience that should be shared.

Some of these programs are taking renewed interest in the relation of the components of a liberal education to professional development. For example, a recent report by the Association of American Medical Colleges (AAMC) refers to the "general professional education" of physicians to encompass the entirety of collegiate-level education and includes recommendations concerning outcomes of both premedical and medical schools (AAMC 1984). The report treats many ideas that seem to be just germinating in the literature of other professional fields. Although a few traditionally graduate programs may refrain from discussing certain issues that they believe to be strictly the province of earlier educational levels, the trend seems to be in the opposite direction. Thus, a comparative study aimed primarily at cross-fertilization of ideas rightfully includes the broad range of patterns through which professional education is acquired and integrated with liberal education.

Comparative study aimed primarily at cross-fertilization of ideas rightfully includes the broad range of patterns through which professional education is acquired and integrated with liberal education.

Given these broad criteria for defining a professional program, the number of professional-type programs included in any comparative study could be extensive. The focus of this report has arbitrarily been narrowed to provide a manageable project, and it includes a few programs common in the nation's larger colleges and universities. The literature search included professional preparation programs from different degree levels and from three emphases: (1) helping (dentistry, medicine, nursing, pharmacy, social work); (2) enterprising (architecture, business, engineering, law); and (3) informing (education, journalism, library science). This classification is not the only possible one that might have been chosen. Some have referred, for example, to the "service" professions and the "production" professions, based on a perceived orientation toward clients (Anderson 1974), or to the "enablers" and "exploiters," according to the degree of altruism exhibited toward clients (Reeck 1982). Other fields might have been included, too: art, chiropody, forestry, music, optometry, osteopathy, podiatry, public health, public relations, religion, research, various sciences, computer sciences, or veterinary medicine (Nyre and Reilly 1979).

The Size of the Professional Preparation Enterprise

Table 1 provides estimates of the numbers of degrees granted annually in each of the professional preparation

TABLE 1

U.S. DEGREES GRANTED IN SELECTED PROFESSIONAL FIELDS, 1981–82[a]

	Degrees	Percent of Total	Percent Change over 1970–71	Percent Women[b]	Percent at Private Colleges[b]
Bachelor's Level Programs					
All degrees in U.S.	952,998	100	+13	50	33
Architecture[c]	9,728	1	+75	30	23
Business/management	212,474	22	+87	39	35
Communications[d]	32,428	3	+214	56	28
Education[e]	101,113	11	−43	76	23
Engineering	67,021	7	+49	11	25
Nursing[f]	32,794	3	NA	95	36
Social work[g]	14,000	1	NA	45	NA
Total	455,558	48	NA		
Master's Level Programs					
All degrees in U.S.	295,546	100	+28	51	38
Library science[h]	4,506	2	−36	82	29
Social work[g]	11,000	4	NA	38	34

First Professional Degrees[i]					
All degrees in U.S.	73,600	100	+94	28	59
Law[j]	35,991	49	+107	34	60
Medicine	15,814	21	+76	25	39
Dentistry	5,282	7	+40	15	40
Pharmacy[k]	1,047	1	NA	42	48

[a] Traditionally, the National Center for Education Statistics provides figures showing changes with respect to the federal census year most recently available. Thus, this table includes percent change in degrees granted since 1970–71. Because of estimates and changes in categories, some change figures have not been provided.

[b] Rounded estimates based on data available.

[c] Some institutions confer the master's degree in architecture or environmental design as a first degree at the end of five years of study. These degrees are not included.

[d] Recent transitions from journalism programs to broader degree programs called "communications" make data difficult to compare. In 1979–80, 73 percent of the degrees in communications were given in the subfield of journalism. Some institutions report both journalism and communications programs, however, where the degree given is in liberal arts.

[e] Education degrees do not include degrees given in a teaching field of arts and sciences accompanied by teacher certification. Institutional practice varies widely, but, in general, education degrees reflect primarily those in elementary education, physical education, and special education.

[f] For 1980–81.

[g] Social work degrees are not reported separately but are given in "social sciences," in "public affairs" (social and helping services), and under "clinical social work" in health professions. Estimates based on these data are provided but do not allow any guesses about the percent of degrees granted by private colleges.

[h] In 1981–82, 307 undergraduate degrees in library science also were given. Such programs, not included here, are nonaccredited and most often associated with school librarianship.

[i] Those degrees classified as "first professional" include law (51 percent), medicine (21 percent), theological professions (9 percent), dentistry (7 percent), other health fields (optometry, osteopathy, podiatry, chiropractic—total of 7 percent), veterinary medicine (3 percent), and pharmacy (1 percent).

[j] Although most law schools grant the Juris Doctor or Doctor of Jurisprudence degree, 846 law degrees were classified as bachelor's degrees in 1981–82.

[k] Bachelor's degrees are also granted in pharmacy, and the distinctions between the bachelor's and first professional degrees vary among institutions. In 1981–82, 625 bachelor of pharmacy degrees were reported separately.

Sources: National Center for Education Statistics, *Condition of Education*, 1984; National Center for Education Statistics, *Earned Degrees Conferred in 1981–82*.

programs examined in this report as well as information concerning recent enrollment trends. Estimating the number of degrees granted in each professional preparation field and the number of existing programs is no easy task. Not all professional preparation degrees, as defined here, are designated separately in HEGIS data. In addition, universities use a wide variety of degree designations to indicate similar academic work. College sourcebooks intended for prospective students also use varying terminology. Specialized accrediting agencies release no records of existing programs that have not sought accreditation. Finally, different universities offer similar programs at different levels. To illustrate, social work is offered at either the undergraduate level (B.A., B.S., B.S.W.) or graduate level (M.S.W.), depending on a college's philosophy. Similarly, while some colleges offer a degree designated as bachelor of science in journalism, others group journalism majors

TABLE 2

ESTIMATED FREQUENCY OF SELECTED PROFESSIONAL PROGRAMS IN THE MOST COMPREHENSIVE U.S. COLLEGES AND UNIVERSITIES[a]

Professional Program	Original Estimate of Number of Programs[b]	Accredited Programs Not Confirmed[c]	Confirmed Programs[d]	Estimated Number of Programs[e]
Architecture	88	18	66	84
Business	499	52	355	407
Dentistry	–	–	–	58[e]
Education[f]	463	78	358	436
Engineering	247	39	191	230
Journalism	278	12	177	189
Law	157	33	106	139[e]
Library science	79	9	48	57
Medicine	–	–	–	112[e]
Nursing	339	57	227	284
Pharmacy	73	11	44	55
Social work (undergraduate)[g]	316	14	215	229
Social work (master's)	36	11	27	38

TABLE 2 (continued)

[a] The set of 540 colleges and universities used as the population included all classified by the Carnegie Council (1976) as research universities, doctorate-granting universities, and comprehensive colleges (I). While professional-type programs occur in comprehensive colleges (II) and liberal arts colleges, they are typically small and concentrated in one or two fields, namely business and education. Including these programs would have expanded the population substantially without producing new information.

[b] Original estimates for programs occurring within the selected classifications of colleges and universities were made from various college guidebooks.

[c] Programs not confirmed directly by colleges but listed by specialized accrediting agencies as having approved programs.

[d] A confirmed program is one verified by the institution's registrar or other official whether accredited or not and irrespective of its listing in other sources.

[e] Known accredited programs plus confirmed programs. Estimates are generally low. For medicine and dentistry, the number of institutions awarding degrees is taken from *Digest of Educational Statistics, 1982* and is for 1979–80. This source reports 179 law schools granting degrees in 1979–80. This figure differs from the authors' estimate because they omitted schools not located within a college or university.

[f] Institutions offering only graduate degrees in education were excluded from the population even when those degrees provided initial entrance to teaching.

[g] When an institution offered both undergraduate and graduate programs in social work, the institution was included with undergraduate programs. Thus, master's level social work includes only those institutions offering no lower degree.

with liberal arts graduates in English, communications, or other fields.

A review of college guidebooks and a 76 percent response to an inquiry of registrars at all colleges included in three Carnegie classifications (research universities, doctorate-granting universities, comprehensive colleges and universities I) give a reasonable sense of the frequency of occurrence of most of the programs in these 540 institutions. These data are shown in table 2.

Study Methods

Identifying outcomes

Most lists of outcomes for professional preparation have been derived from an early definition of "professional" that included a knowledge base, craftsmanship, a measure of control over the educational process, a standard of ethical conduct, and the use of peers' judgment of professional competence (Flexner 1915). Building upon this definition, various analysts have attempted to confirm the characteristics of a profession, and from this base comes the limited literature comparing professional preparation across fields of study. Because the two previous research reports (Anderson 1974; Nyre and Reilly 1979) reviewed the handful of major efforts, summaries of those works are not repeated here (see, for example, Becker and Carper 1956; Blauch 1955; Boley 1977; Gartner 1976; Haber 1974; Hughes et al. 1973; Larson 1977; McGlothlin 1960, 1964; Mayhew and Ford 1974; National Society for the Study of Education 1962; Schein and Kommers 1972; Vollmer and Mills 1966). This report instead draws upon this and other literature (for example, Bucher and Stelling 1977; Hoppmann, Liu, and Rivello 1980; Houle 1980; Sherlock and Morris 1967) to describe a set of outcomes of professional preparation that seem to be generic to all fields. The list of outcomes was derived using a "grounded theory" approach, alternating between literature reviews and discussions with professional program faculty. A detailed discussion of the derivation and the place of the outcome list in a broader conceptual framework for studying preservice professional preparation programs is found elsewhere (Stark et al. 1986).

The professional preparation outcomes that appear to be sufficiently specific to allow the examination of programmatic differences fall into two categories. One category, called "professional competence," corresponds to the common notion of the "technically competent practitioner" but has six important facets, each of which may be the target of specific educational processes. The second category, called "professional attitudes," encompasses five dimensions of professional commitment (McGlothlin 1960, 1964; Sherlock and Morris 1967). Table 3 provides a brief definition of each dimension within the two broad categories of professional competence and professional attitudes.

The literature review

Using the definitions of generic professional preparation outcomes, the authors explored the literature published in educationally focused journals of the various professional preparation fields to identify articles that defined, described, measured, or exhorted professional educators to

TABLE 3
PROFESSIONAL PREPARATION OUTCOMES

Professional Competences

- *Conceptual competence*—Understanding the theoretical foundations of the profession
- *Technical competence*—Ability to perform tasks required of the professional
- *Contextual competence*—Understanding the societal context (environment) in which the profession is practiced
- *Interpersonal communication competence*—Ability to use written and oral communication effectively
- *Integrative competence*—Ability to meld theory and technical skills in actual practice
- *Adaptive competence*—Ability to anticipate and accommodate changes (for example, technological changes) important to the profession

Professional Attitudes

- *Career marketability*—The degree to which a graduate becomes marketable as a result of acquired training
- *Professional identity*—The degree to which a graduate internalizes the norms of a profession
- *Ethical standards*—The degree to which a graduate internalizes the ethics of a profession
- *Scholarly concern for improvement*—The degree to which a graduate recognizes the need to increase knowledge in the profession through research
- *Motivation for continued learning*—The degree to which a graduate desires to continue to update knowledge and skills

consider one of the outcome categories. They also examined books dealing specifically with education in particular professional preparation fields, accreditation guidelines, and major reports published by professional associations or groups of professional schools. Although this report draws upon all of these sources, it draws most extensively from the educational journal literature of 12 fields.

Library sources like *Resources in Education* led to many journals that are primarily or partially devoted to discussions of educational practices and issues in the various professions. Based on the space they devoted to educational concerns and on discussions with colleagues in professional fields, one (in one case, two) journal from each field was selected for detailed examination. As shown in table 4, those choices were generally coincident with journals professional faculty read to become informed about issues of educational practice as reported in a later survey (see Appendix A for details).

Nearly 3,000 articles published in 14 different journals from January 1979 through December 1984 were examined, of which 660 were selected for detailed review. The details of selection are given in Appendix A.

This review confirms earlier statements (Anderson 1974; Nyre and Reilly 1979) that medical educators and teacher educators are among the most prolific writers of literature focusing on issues of professional preparation. Dental and pharmacy education are other fields where educational lit-

TABLE 4

CONGRUENCE BETWEEN JOURNALS PROFESSIONAL FACULTY READ AND JOURNALS SELECTED FOR REVIEW

Journal	Reviewed	Number of Faculty Members in Field Naming at Least One Journal	Percentage of First Mentions*	Percentage of First and Second Mentions
J of Architecture Education	•	84	67.9	40.3
Architecture			4.8	11.4
ACSA Journal			10.7	10.7
No business administration journal was named by at least 10 percent of the survey respondents.				
J of Teacher Education	•	422	15.2	11.4
Phi Delta Kappan			26.1	22.1
Engineering Education	•	203	26.6	18.0
IEEE Spectrum			11.8	12.2
J of the American Society of Engineering Education			7.4	21.7
Journalism Educator	•	190	43.7	32.5
Journalism Quarterly			24.2	23.1
J of Legal Education	•	176	96.0	77.6
American Bar Association Journal			1.7	12.1

TABLE 4 (continued)

J of Education for Librarianship	*		33.1	20.9
J of Education for Library/ Information Science			32.4	20.0
Nurse Educator	*	343	9.9	11.3
J of Nursing Education	*		38.5	28.5
Nursing Research			5.5	10.3
Nursing Outlook			23.3	23.0
J of Pharmaceutical Education	*	92	83.7	58.1
American Pharmacy			1.0	13.2
J of Education for Social Work	*	204	56.9	36.8
Social Work			27.5	36.3
J of Dental Education	*	No Survey Information		
J of Medical Education	*	No Survey Information		

*As described in Appendix A, faculty members were asked to contribute the names of up to two journals. Because some provided only one journal name and because the journal named second by some faculty members was a first mention for others, two columns of data are provided. "Percentage of first mentions" indicates the percentage of responding faculty in the field who mentioned the journal first. "Percentage of first and second mentions" indicates the percentage of mentions the journal received from the combined set of first- and second-named journals. Only first and second mentions greater than 10 percent are included.

erature is abundant. In contrast, no single journal dealing with educational issues for business administration could be found, and, in this survey, even 10 percent of faculty in business did not name a journal. Each subspecialty of business (marketing, accounting, organizational studies, and so on) has some type of publication devoting space to educational practice, but business administration faculty named none of them consistently in a manner parallel to journals like the *Journal of Medical Education* or the *Journal of Education for Social Work*.

While it seems likely that articles published in the established education journals of each field reflect current discussions within each field of professional preparation, several factors may call such an assumption into question. Journal sponsorship varies, as do editorial and manuscript acceptance policies. In some cases, published articles may presage changing practices in the field; in other cases, they may reflect primarily past trends or merely the "publish or perish" pressure on faculty members. Because this review seeks to describe broad trends in the literature, the authors made no attempt to evaluate the articles, beyond exclusion of those that were clearly not helpful.

The literature on professional education is so extensive that delimiters are necessary in any brief report. Except where it was difficult to draw the line, this report was restricted to articles about initial professional preparation (whether at the undergraduate or graduate level) and did not review the extensive literature on continuing professional education. Articles that were reports of curricular experiments, unless they dealt with the broad outcomes in this framework rather than with specific content or teaching methods, were also excluded. In addition, labor market trends in the various professional fields have not been dealt with.

Three broad questions guided the literature review. What does the literature in education journals from the respective professional fields have to say about the generic outcomes? Is the outcome framework feasible for use in identifying special and common aspects of preparation? What practical implications for faculty, administrators, and researchers are suggested by a comparative literature review?

Faculty Views of the Emphasis on Outcomes

By the time the literature review was finished, survey responses from 2,217 faculty members in 732 professional programs representing 10 of the 12 professional fields were available (see Appendix A for information about the survey population and response). These data provided information about the emphasis faculty thought "ideally" should be given to each generic professional preparation outcome and faculty descriptions of educational activities designed to achieve the outcomes. Because the literature review, rather than the survey, was the primary source and because a detailed analysis of the survey is still underway, the authors have not made formal statistical comparisons between the emphasis in the journals and faculty perceptions gathered in the survey. Nonetheless, the traditional literature review was supplemented with some preliminary survey results to give the reader a notion of the extent to which the discussions in the literature reflect outcomes faculty in various fields perceive as important. Thus, for each outcome are listed the fields with the most extensive and least extensive journal discussion, the fields in which faculty perceive the outcome to be of greatest and least importance, and the fields in which the highest and lowest percentage of faculty said that specific formal or informal activities intended to achieve the outcomes existed in their program. The reader is cautioned that the professional fields included in the survey were not identical to those for which literature was reviewed, the estimates of emphasis given to a topic in the journal literature are not precise, and the reasons why a topic may be widely discussed in journals but appear less important on campus (or the reverse) are still under study.

Summary

A profession "may be a fundamental social process embedded in the relationship between society and those who practice certain expert occupations" (Forsyth and Danisiewicz 1985, p. 60). The use of the term "expert" implies competent performance; thus, it is not surprising to find that a frequently expected outcome of professional education is to produce competent practitioners. This comprehensive outcome, shared by all preparation programs, probably leads to the widely accepted assertion that professional education is technical education. Yet it is far too simplistic a definition. This analysis of the literature, as well as the preliminary analysis of the authors' survey of faculty in 10 professional fields, indicates that professional preparation is a much more complex concept encompassing several components involving knowledge, skill, and attitudes.

Developing competent professional workers is the primary objective of professional education programs. From earlier studies and discussions, six types of professional competence have been identified that appear to be sought in all or most professional programs: (1) conceptual competence, (2) technical competence, (3) contextual competence, (4) interpersonal communication competence, (5) integrative competence, and (6) adaptive competence (Stark et al. 1986). [The sense in which the term "competence" is used is the level of proficiency that professional program faculty expect a new entrant to the profession to demonstrate. While some have suggested that professional "proficiency" would be a better term (as competence implies a minimal level of performance), others suggest a performance continuum from competence to proficiency to mastery, with mastery resulting from considerable work experience (Scheffler 1965).]

Certainly, the degree to which individual graduates achieve the expectations faculty hold for them vary as do the expectations in different programs. Although variations exist among fields, reactions of 2,230 professional program faculty members in 10 fields to statements describing graduates in terms of each of these competences indicate that all of these outcomes are quite important. (The 10 fields surveyed included architecture, business administration, education, engineering, journalism, law, library science, nursing, pharmacy, and social work. Medicine and dentistry were not surveyed.) Of the articles concerned with outcomes in the professional journals reviewed, about 38 percent were classified as dealing with technical competence, about 22 percent with conceptual competence. Each of the other competences accounted for less than 15 percent of the outcome-related articles. Adaptive competence was the outcome represented least frequently; less than 10 percent of the articles were classified as discussing it.

Developing competent professional workers is the primary objective of professional education programs.

Conceptual Competence

Graduates may be considered conceptually competent if they have learned the generally accepted foundational knowledge upon which professional practice is based. (Other terms for this knowledge domain include "theoretical foundations," "professional science," and "professional knowledge base.") Partly because of a rapidly

TABLE 5
CONCEPTUAL COMPETENCE

Relative Proportion of Journal Articles[a]	Importance of Professional Outcome[b]		Program Has Educational Activities to Achieve Outcome[c]
High	**High**		**High**
Social work	Nursing	84%	
Law	Social work	79%	*No data*
Medicine			
Low	**Low**		**Low**
Engineering			
Pharmacy	Architecture	49%	*No data*
Library science	Business	46%	

[a] A "high" proportion of articles indicates that over the five-year period examined, the percentage of outcome articles devoted to this competence was above the third quartile of percentages of all fields examined; a "low" proportion indicates the percentage of articles in the field fell below the first quartile. Because the number of articles reviewed varied widely by field, because not all journals were included, and because the purpose of the review was integration of ideas rather than precise classification of articles, this level of precision is appropriate to convey the level of discussion.

[b] Percentage of faculty members in the survey who answered "7" on a seven-point scale when asked what emphasis would "ideally" be placed on the outcome in their professional preparation program.

[c] For most outcomes, this information includes the percentage of faculty members in the survey who reported that their program had formal or informal educational activities intended to foster the outcome. Because the authors presumed that all programs would have educational activities designed to lead to conceptual competence, faculty responding to the survey were not asked to describe such activities for this outcome.

changing technological society, faculty members in professional fields do not fully agree on the content that makes up the knowledge base. Even in the least debated fields (business and engineering), over 40 percent of faculty members believe a lack of consensus exists concerning the conceptual knowledge base (Stark, Lowther, and Hagerty 1985). Thus, as might be expected, conceptual competence receives substantial attention in the literature about professional preparation.

As indicated in table 5, relative to other fields, journals directed at educators in social work, law, and medicine published the greatest proportion of articles dealing with conceptual competence, while journals aimed at educators in engineering, pharmacy, and library science published the smallest proportion. The survey results indicate, however, that the proportion of articles published does not necessarily correspond to views of faculty in the field concerning the importance of conceptual competence. In the survey, nursing and social work faculty viewed conceptual competence as most important, while faculty in architecture and business perceived it as less important.

A pervasive, frequently contentious, problem for professional educators is the amount of conceptual content to include in the entry-level curriculum. In recent years, this problem has been exacerbated for all professional fields by at least three influential factors: (1) the rapid growth of specialized knowledge, (2) the application of new technologies to practice, and (3) the expansion of professional obligations to include new clients or recipients of service. These factors have modified the priorities of professional preparation and have provoked searching analyses of the curriculum in all fields, particularly in relation to conceptual competence. In dentistry, for example, the expansion of the service framework is reflected in assertions that dentists should be sensitive "to the needs of all the people—the economically, physically, and emotionally disadvantaged" (Dworkin 1981, p. 693). Similarly, in engineering, "the computer has revolutionized engineering course content and instructional methods" (LeBold 1980, p. 407). Such developments have profound implications for the attainment of conceptual competence and, as discussed later, of contextual and technical competences as well. Dental educators must find space in the course of study to include content from the behavioral sciences; engineering educators struggle with the social ramifications of new technologies. These same two phenomena, an ecological view of the client and an expanding technology, stimulate major curriculum debates (and sometimes changes) in most professional fields.

Consequently, the literature about conceptual competence, that is, the literature that examines the fields' theoretical foundations or fundamental knowledge base, often is characterized by uncertainty and disputation and occasionally by heroic rhetoric about mission. Questions emerge about the purpose and thrust of the profession itself, about what knowledge is fundamental to the field, about the relationship between theory and practice, and about how to meld the program into a meaningful and rational whole.

For the purposes of this discussion, different sets of literature about conceptual outcomes have been identified. One set of articles addresses the broad issue of program validity, that is, the rationale or integrity of the total preparation program. Do all the courses and experiences link together into an intellectually coherent entity? What is the appropriate overall strategy for preparing a person for entry-level practice? Is one conceptual framework "best" for professional preparation? Of course, all of these questions hark back to the essential query: What is the purpose or mission of the field? These questions, in fact, form the bulk of the literature dealing with conceptual competence, far surpassing that providing more specific discussions of conceptual competence, means for achieving student outcomes, or empirical examination of outcomes achieved.

A second set of articles addresses knowledge or theory as foundational bedrock for the attainment of all other competences. Such articles assume that practice is indeed guided by theory and must be preceded by mastery of relevant concepts. Much of this literature, devoted as it must be to the particular concepts to be taught and learned, is occupationally specific, and frequently it is difficult for nonmembers of the profession to distinguish discussions of conceptual competence from those concerning technical or skill competence. This report focuses on that literature in which several fields discuss similar problems.

A third set of articles focuses on conceptual competences that do not reside specifically in knowledge or theory but can be characterized as integral to the person: They must be present for successful attainment of other competences and for practice. They include such attributes as values, attitudes, and cognitive capabilities, which include, for example, problem-solving skills, creative capabilities, and critical thinking skills. Such internal competences are called "entry-level characteristics," which may or may not be present in the student but are conceptual fundamentals for subsequent education and practice (Bloom 1976). Thus, they are distinguished from "professional attitudes." Although professional attitudes are developed during professional study, the prerequisite student characteristics are classified as conceptual because they underlie performance in the professional preparation program and may serve as a basis for distinguishing classes of students' performance (very creative, a good problem solver, and so on).

Program validity

On the education of pharmacists, some writers have observed that "we have yet to decide which science(s) and at what depth are relevant to professional practice instruction" (Vogt, Montagne, and Smith 1981, p. 237). Similarly, in law:

> *One can say without fear of serious contradiction that legal education taken as a whole is best described as a craft that has been dead in the water since the late fifties. Changes there have been—clinical education has grown, seminars have appeared at the smallest schools, women have appeared everywhere in great numbers—but the fundamental structure of legal education remains essentially as it was at the elite schools in the immediate post-war years* (Schlegel 1984, p. 103).

These two statements from writers describing quite different preparation programs illustrate a mood of self-assessment and uncertainty that appears in all fields to some degree. Concerns, observations, and recommendations are expressed about such general preparation issues as program mission, direction, and control (Alofsin 1983; Auerbach 1984; Bakalinsky 1982; Barondess 1981; Cantor, Schroeder, and Kurth 1981; Cavers 1983; Cramton 1982; Dinerman 1982; Dostoglu 1983; Frumkin 1979; Gianniny 1982; Hacker 1982; Hartman 1980; Huling and Hall 1982; Isakson and Ellsworth 1979; Ivey 1982; Jarrett 1979; Jordon 1979; Klare 1982; Kroll and Mikellides 1981; LeBold 1980; LeBold, Lindenlaub, and Seibert 1980; Loe 1981; Meunier 1979; Pye 1982; Richardson and Hernon 1981; Rowles 1982; Roy 1979; Schlegel 1984; Smith, Johnson, and Johnson 1981; Snyder and Anderson 1980; Teigiser 1983; Terkla 1981; Vernon 1983; Vogt, Montagne, and Smith 1981; White 1982; Wodarski 1979; Zeichner 1983).

The recommendations in these overall statements range from the very broad to the very narrow and usually reflect experience-based opinion rather than conclusions drawn from systematic research. On the one hand, such broad self-critical statements of concern may represent some degree of instability and uncertainty about professional preparation. On the other hand, such expressions of self-doubt may, in fact, be healthy qualities suggesting educational maturity, confidence, and a willingness to entertain criticism and recommendations without defensive posturing.

Knowledge of theoretical foundations

As described earlier, another set of articles focused on conceptual outcomes, many of which were field-specific. Some issues, however, appear to bridge several of the professions, and this discussion is organized around three such generic themes:

1. The value and role of certain academic courses;
2. The incorporation of social science content as a conceptual foundation;
3. Changes in practitioners' roles that imply needs for new theoretical foundations.

Value and role of certain courses and content. Professional educators in several fields appear to be questioning the theoretical utility of traditional foundations courses. Most frequently targeted for criticism are courses treating historical and/or philosophical foundations of the particular profession. Architecture educators have questioned the contribution made to effective practice by the study of architectural history (Abbey and Dripps 1982; Creese 1980; Hubbard 1980); journalism educators have raised similar issues. Perhaps, however, the most searching review of required courses in history and philosophy of a field comes from teacher educators. A number of teacher educators have argued that these courses are not basic to the field as suggested by the name "foundations" (Nash and Agne 1982; Warren 1982). They assert that the current content is superficial and highly abstract and tends to induce ideological "platitudinizing."

> *We have argued that contemporary social and professional conditions have put the foundational disciplines in*

> *a precariously defensive position; in some cases, foundational studies have been deleted entirely from professional programs* (Nash and Agne 1982, p. 6).

As might be expected, advocates of such courses have responded with their own claims of intent (Green 1981; Williams 1982).

> *The foundations area, by studying the school within a social context and by analyzing the problems from an interdisciplinary approach, provides an excellent opportunity to promote cultural thought, the basic ingredient of a true education* (Williams 1982, p. 34).

Interestingly, similar debates about traditional foundations study exist in many of the professional fields, illustrating the crowded nature of the curriculum and the dilemmas of pruning. At the same time, however, many fields have begun to introduce social science content directly into their professional knowledge core, while others are seeking to expand the contextual horizons of graduates through liberal education and interdisciplinary avenues. It is possible that the agents of change target their pleas for examination less at the concepts to be included in the curriculum than at the particular style and teaching format these foundational courses have gradually acquired over the years. Another feasible explanation is that the threat of college and university retrenchment encourages faculty to maintain foundational courses in separate professional study areas although they could be taught in a more interdisciplinary format.

Incorporation of social science content. In examining potential physicians, the National Board of Medical Examiners now includes questions drawn from the behavioral sciences in an attempt to demonstrate "the interaction of biological, psychological, and social factors in the onset and treatment of illness" (Begun and Ricker 1980, p. 181). As a consequence, "medical educators agree that the behavioral sciences are important in medical education, but translating this affirmation into an effective curriculum has proven to be a complex task" (Carr 1981, p. 667). The inclusion of behavioral science as contributing to conceptual competence in medicine is a phenomenon shared by a number of other professional preparation programs (AAMC 1984; Bailey 1979; Brusich 1980; Dolinsky 1979; Dworkin 1981; Gianniny 1982; Johnson and Wertheimer 1979; Jordon 1979; Jvhasz 1981; Leighninger and Leighninger 1980; Mohan 1980; Priest 1983; Seidel 1981; Shreve et al. 1980; Shuck 1983; Svarstad 1979; Sze, Keller, and Keller 1979).

The expansion of the conceptual base to include more social science or behavioral theory responds to an expanded vision of clients' needs and an attempt to provide a basis for clients' interaction that will maximize the delivery of quality service. Its inclusion, however, creates both issues of curricular volume and instructional dilemmas. Who, for example, should provide the instruction? The professional program faculty? Faculty drawn from other units? Does social science content actually advance professional practice? Can nonprofessional faculty members modify content to make it relevant to the particular needs of the professional school?

Changing roles of practitioners. A number of articles propose emphasis on new roles for practitioners to serve new clients—for example, human service workers in education, health educators in nursing (Graham and Gleir 1980) and in pharmacy (Fedder and Beardsley 1979), public health pharmacists (Bush and Johnson 1979), public agency workers and child welfare workers in social work (Gibelman 1983; Stein 1982). But the introduction of new specialty areas within established preparation programs tends to exacerbate the problem of appropriate conceptual content.

Students' attitudinal and cognitive attributes

One area of the literature treats attributes of students, such as values, attitudes, and cognitive capabilities as prerequisite to effective practice and, indeed, to successful professional preparation. The preparation program may attempt to foster the development of such attributes, if the student does not possess them. For example, in engineering, suggestions are made regarding ways to advance students on the Perry scheme of intellectual development (Culver and Hackos 1982), to teach holistic ways of thinking and the use of higher levels of intellect (Williamson and Hudspeth 1982), and to structure students' learning goals to meet the goals of engineering education (Smith, Johnson, and Johnson 1981). Journalists propose the need to focus on problem solving (Bennett 1984), while in library science, a suggestion is made to enhance students' awareness of their own learning processes as a prerequisite for improving the ability to learn relatively independently at high levels (Ford 1984). Medicine addresses issues of problem solving: "Reasoning from the premise that highly developed problem-solving skills are requisite to effective clinical practice, many medical schools have incorporated some form of problem-based instruction or assessment into their curricula" (McGaghie 1980, p. 912). Furthermore, medical educators have developed a taxonomy to evaluate the overall cognitive performance of medical students (Buckwalter et al. 1981). In part, the increased concern about such attributes represents awareness among professional faculty of the advancing research about metacognition and styles of learning. Emphasis on development of these attributes seems intended to accomplish two purposes: improving students' conceptual capabilities and providing a vehicle for socializing the student into the modes of thought associated with the profession. For example, "with respect to law school, deliberate, technical socialization is generally agreed to be the acquisition of information, concepts, and intellectual skills—often summed up as learning 'to think like a lawyer' " (Schwartz 1980, p. 440).

Values, attitudes, and cognitive capabilities [are] prerequisite to effective practice and, indeed, to successful professional preparation.

Technical Competence

Technical competence refers to a graduate's ability to perform fundamental skills required of the professional. In the various professions, technical competence is closely related to conceptual competence; thus, the "craft" aspect of professional preparation is clearly unique to each field. Because skills needed by an architect are distinguishable from those needed by a nurse or a lawyer, for example, less opportunity seems available to find commonalities across professional preparation programs with respect to technical competence than in most other aspects of competence. Further, it is more difficult for individuals who are not trained in the professions to understand the literature written about technical competence, contributing to the view that professional education is narrow. Historians of the professions point out, however, that preparation for

TABLE 6
TECHNICAL COMPETENCE

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome[a]
High	**High**		**High**
Journalism	Social work	79%	*No data*
Social work	Journalism	71%	
Library science	Education	63%	
Low	**Low**		**Low**
Nursing	Library science	35%	*No data*
Pharmacy	Architecture	32%	
Engineering	Law	25%	

[a] The authors, presuming that all fields would have activities to develop technical competence, did not ask faculty to describe such activities.

most professional fields migrated from apprenticeship status to university status when the conceptual base of an occupation had expanded so that on-the-job training in skills no longer sufficed to produce a competent professional (Bullough 1970). Today, most fields that more heavily emphasize technical competence compared to conceptual competence would not be judged "professional."

As shown in table 6, three fields, library science, journalism, and social work, devoted a considerably higher proportion of journal articles to technical competence than did other fields. Nursing, engineering, and pharmacy, which the casual observer might judge to be more concerned with the development of skills, devoted a low proportion of journal articles to this outcome. A similar pattern emerged in the survey of professional field faculty. Faculty members in architecture and law were the least likely to believe technical competence should be emphasized. In fact, faculty in some fields, such as law, felt that the development of skills currently receives more emphasis than it should. Perhaps recent criticisms have caused professional educators to be reluctant to discuss skill development so as not to appear excessively vocational. Alternatively, one can speculate that basic skills needed by new professionals are fairly well established in many fields and firmly entrenched in licensing and certification examinations where they exist, and that continued discussion is little needed.

This discussion focuses on identifying a few categories of technical skills that seem common to several fields. Three such generic types of technical skills are addressed in the professional journals: (1) psychomotor skills, (2) interpersonal skills, and (3) special cognitive skills.

Psychomotor skills

The journal literature does not heavily emphasize psychomotor and technological skill outcomes, although some fields describe entire new curricula for required skills (Heymann and Roberson 1984). Others describe specific skills required of their graduates. For example, one library science article discusses training in on-line cataloging (Downing 1981), while dental educators describe specific techniques required of students, such as endodontic skills (Goerig 1980). Other articles discuss methodologies for evaluating technical outcomes defined as competencies. In the area of measuring competency, one article in social work lists 87 specific competencies to be evaluated. Educators in pharmacy describe domain-referenced tests and practice rating scales (Grussing, Cyrs, and Silzer 1979; Holloway 1979); authors in dentistry discuss the need for feedback from students and competency requirements for state board examinations (Terkla 1981). Nursing education literature describes employers' competency ratings of new graduates (Bolin and Hogle 1984).

Interpersonal skills

For most purposes, interpersonal skills are viewed in this monograph as a separate category called "interpersonal communication competence." Differences are apparent, however, between interpersonal skills as techniques specific to particular fields and a more general competence that allows one to be adept in interpersonal communication. Particularly in the helping professions, specific training is required for interaction with clients like the elderly, the handicapped, and minorities (Corcoran 1981; Salley 1980; Toseland and Spielberg 1982; Wright 1981). Similarly, in fields like journalism and law, communication skills might be viewed as technical competence that extends beyond a general level.

Special cognitive skills

Special cognitive skills include behaviors specific to a field (design skills in architecture, for example) (Meunier 1979) and more general skills used by several fields (statistics and literature reading, for example) (Riegelman, Povar, and Ott 1983). These types of special skills allow the new professional to perform certain tasks or procedures that enhance professional practice. Such a classification also includes "creative" skills, which may be nurtured in fields such as architecture, journalism, and some aspects of engineering (Merrill 1980; Meunier 1979).

Society sanctions professional practice based on technical competence, that is, those skills necessary to ensure the provision of safe, quality service to clients. Yet the literature contains negligible discussion of technical competence as a component for defining a professional field. Indeed, professions appear to use their skills and technical base of practice to expand their boundaries and to define more inclusively their arena of practice. As economic constraints increase, clients and employers of professionals appraise the cost effectiveness of professional practice, based in part, on its technical components. Thus, in spite of the apparent reluctance of professional educators to focus on technical competence, this outcome may be influenced by pressing issues with respect to the nature, effectiveness, and efficiency of professional practice in all fields.

Contextual Competence

"Contextual competence" signifies an understanding of the broad social, economic, and cultural setting in which the profession is practiced (McGlothlin 1964). It refers not only to the professional's specific work setting, but also to the larger environments, both social and natural, within which the work is embedded. The acquisition of this competence implies that the student can examine the environmental context from a variety of vantage points: historical, social, economic, psychological, political, and philosophical. The capability to adopt multiple perspectives allows the student to comprehend the complex interdependencies between the profession and society, thus fostering both increased professional social awareness and more effective citizenship (Smith, Johnson, and Johnson 1981). The achievement of contextual competence allows the student to transcend egocentric or parochial levels of thought in interpreting contemporary life. In this fashion, the needs of society and of the professions are met in a complementary way. By fostering breadth of vision and understanding through multiple perspectives, contextual competence serves to counter the accusation that professional education is excessively narrow and intellectually confining (Torgersen 1979).

Typically, the task of implementing contextual competence has resided with liberal arts and, particularly, with educators in the humanities. Yet this obligation has long been surrounded by debate within professional fields about the appropriate amount and nature of nonprofessional or contextual course work required (Raths 1980) and whether liberal arts courses are the appropriate curricular vehicle to achieve the objective (Hodges and Lichter 1980). Recently, this debate has been accompanied by a growing awareness that society's moods and needs generate powerful forces for most professions that may disrupt established professional life (AAMC 1984; Porter 1979). For example, some professions are subject to widespread discontent about what is seen as self-serving behavior (Larson 1977; Schon 1983), and the point is vividly made: "The blunt, inexcusable fact is that this nation, which prides itself on efficiency and justice, has developed a legal system that is the most expensive in the world, yet cannot manage to protect the rights of most of its citizens" (Bok 1983, p. 574).

For the teaching profession, numerous public agencies are attempting to remedy what they perceive as contextual deficiencies in teacher training through legislation, testing, and revision of licensing standards. Such considerations imply that increased emphasis on contextual competence may positively influence societal/professional relationships, thus serving the needs of both constituents. Consequently, the literature suggests that professional educators are reassessing their commitment to contextual competence as well as the ways in which that competence may be achieved.

As shown in table 7, relatively high proportions of journal articles concerning contextual competence are found in architecture and law, relatively low proportions in library science, nursing, business, and pharmacy. Faculty in social work, journalism, and nursing believe contextual competence should be emphasized to a substantial degree, while faculty in business, pharmacy, law, and engineering rank it

TABLE 7
CONTEXTUAL COMPETENCE

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
Architecture	Social work	70%	Social work	93%
Law	Journalism	59%	Nursing	91%
	Nursing	55%	Architecture	85%
Low	**Low**		**Low**	
Library science	Business	36%	Business	66%
Pharmacy	Pharmacy	34%	Law	61%
Nursing	Law	28%	Engineering	60%
Business	Engineering	19%		

quite low among the competences a graduate should possess. According to this survey, those fields in which contextual competence is least emphasized also cite fewer activities to achieve it.

The literature about contextual competence was grouped according to three themes: (1) the liberal arts connection, (2) the social and environmental content within the professional curriculum, and (3) the recognition of social diversity.

The liberal arts connection

The literature describing the role of liberal arts or the humanities in professional preparation programs ranges from a conception (in journalism and law) of the professional program as a liberal arts discipline and as a professional study (DeMott 1984; Lindley 1984; Stone 1984; White 1982) to concern (in engineering, for example) about whether the tight professional curriculum can accommodate even a small number of liberal courses within four years (VanderMeer and Lyons 1980). Further, graduate professional programs like medicine see their role as the "shaping" of the baccalaureate program to include social sciences, natural sciences, and humanities through modification of perceived and required admissions criteria (AAMC 1984). Underlying all these discussions is a conviction that professional education can benefit from the liberal arts tradition (Dovey 1981; Neidle 1980; Reid 1979; Smith 1979; Torgersen 1979). What may be at issue is the best form of implementation. Questions are raised frequently about the appropriate contextual content, the contributions of various liberal arts disciplines, and the proper ratio between such courses and professional studies. One national sample of the attitudes of engineering faculty toward liberal arts in the engineering curriculum found that most faculty favor no growth or a reduction in liberal arts courses. Further, they are not inclined to be prescriptive about what disciplines ought to be represented (VanderMeer and Lyons 1980). Such attitudes, the authors concluded, are fostered partly by rapid advances in engineering knowledge and by the constraints of a four-year program. This issue seems most acute in those professional programs where entry-level professional preparation frequently is provided in a four-year period culminating in a bachelor's degree—that is, education, nursing, engineering, journalism, and social work. In part, of course, such attitudes may also reflect distrust among faculty in professional fields about the way in which liberal arts are taught:

> *Devotees of the humanities and social sciences generally have failed to develop an understanding of their own subject matter as essentially action guiding. The liberal studies appear to have been singularly unsuccessful in either enriching or illuminating the lives of the large mass of citizenry in democratic societies, much less the activities of highly trained technical professionals* (Hodges and Lichter 1980, p. 817).

Despite such accusations and the fact that liberal arts courses account for only about 20 percent of the engineering student's total coursework, the liberal component in engineering education has a long history and contemporary vitality (Torgersen 1979).

Some professional teacher education programs, having emerged from the liberal arts tradition, continue to rely very heavily on that coursework for as much as two-thirds of the total curriculum. Currently, however, this traditional relationship is being penetrated with seams of doubt. Several factors may help to account for this reexamination of the liberal arts relationship: the growing vocationalism of students in education, the dramatic increases in knowledge about teaching (Tymitz-Wolf 1984), and questions about the outcomes of general education (Raths 1980). As might be expected, strong liberal arts advocates deplore the perceived drift away from the liberal arts tradition to vocationalism (Carbone 1980; Webb and Sherman 1983), and recently national reports and government officials have begun to as well. Although the general education component of teacher training seems well established, what some professional teacher educators are proposing is that the field be more prescriptive about appropriate courses and more specific about intended student outcomes (Carbone 1980; Raths 1980). Like engineers, teacher educators have proposed expanding the program to five years, but the proposal has not been widely adopted (Kluender 1984).

Journalism faces special dilemmas as a consequence of its professional accrediting agency's rule that only 25 percent of total coursework may be professional in nature (Stone 1984; Zagano 1983). Furthermore, journalism educators are challenged by assertions from some magazine and newspaper editors that professional or technical coursework is unnecessary and that the best preparation for practice is a liberal arts degree. Thus, a core issue for journalism educators is how to resolve the tension between expansion of technical knowledge and the perceived legitimacy of professional preparation courses (Haroldsen and Harvey 1979; Mehra 1984; Mills, Harvey, and Warnick 1980).

Professional preparation in social work can be acquired through either a four-year curriculum leading to a bachelor of social work degree or by pursuing a master of social work degree. Supporters of the M.S.W. curriculum argue that the B.S.W. too heavily erodes necessary groundwork in liberal arts. Advocates of the B.S.W. claim that undergraduate social work education, with its strong emphasis on societal problems, can serve as a vehicle for resolving a fragmented liberal education (Reid 1979).

Social/environmental content within the professional curriculum

The second major category of literature about contextual competence focuses on how it can be fostered within the professional curriculum rather than relying solely on liberal arts courses. As suggested earlier, professional educators are concerned that the liberal arts lack focus on the occupational world of the professional; that is, current liberal arts content is too abstract and too removed from reality. As a consequence, many professional educators have attempted to introduce contextual issues into their own curricula (Abramson 1979; Allen and Burwell 1980; Berman 1981; Ellis 1981; Findley 1979; Gessner, Katz, and Schimpfhauser 1981; Gitterman and Germain 1981; Grantham and Block 1983; Harris and Rosenthal 1981; Lewis 1979; Martinez-Brawley 1983; Porter 1979; Smith 1979; Vonalt et al. 1980; Von Blum 1979), and in some fields, such as medicine, faculty development programs are proposed to raise consciousness and competence concerning the professional context (AAMC 1984).

Professional educators are concerned that the liberal arts . . . content is too abstract and too removed from reality.

Much of the literature describing integration within the professional courses focuses upon how specific content was introduced in a particular course setting. For example, an interdisciplinary approach was taken in one course to foster a historical perspective (Von Blum 1979); in another setting, attempts were made to fuse social content into an entire curriculum (Gessner, Katz, and Schimpfhauser 1981). Professional educators face dilemmas as they attempt to introduce social content. On the one hand, much of the desired content is interdisciplinary, which may preclude its incorporation into existing disciplinary courses. On the other hand, general survey courses do not provide adequate depth or are unrelated to professional concerns. Last, introducing new electives may force students to choose between them and attractive skill courses. As yet, the arguments are not bolstered by much evidence that if broad issues are introduced directly into a professional program, the attitudes of faculty and students will change in the desired directions.

Social diversity

The final category of literature about contextual competence suggests a growing awareness of the wide diversity of populations served by the professions. In part, this recognition may emerge from the economic need to expand the client base (Brendtro 1980; Carlson and Lockwood 1980); more probably it represents implementation of humanitarian concern to provide service to all who require it and to recognize clients' differing needs. Most of the professions recognize the need to introduce social realities and the necessity and moral obligation to provide service to women (Kravetz 1982; Rathbone-McCuan 1984), to the handicapped and other special populations (Cassileth and Egan 1979; Humphreys 1983; Jennings and Smith 1979; Lange and Fender 1980; Salley 1980), to the aged (Allen and Burwell 1980; Buschman, Burns, and Jones 1981; Denise and Nauratil 1984; Gessner, Katz, and Schimpfhauser 1981; Shepherd and Erwin 1983; Thomas and Ship 1981), to minority and ethnic groups (Baker and Mayer 1982; Balgopal, Munson, and Vassil 1979; Proctor and Davis 1983; Pugach and Raths 1982; Sims 1981; Steiner and Devore 1983), and to entire communities (AAMC 1984). Just as the people-oriented professions express sensitivity to diversity, architecture and engineering have introduced content about the natural and social environments and the need to integrate treatments (Comerio 1981; Dovey 1981; Ellis 1981; Gaines 1980; Hull 1979; Lewis 1979; Littman, Mayo, and Burgess 1981; Thorpe 1979; Treib 1982).

Interpersonal Communication Competence

Interpersonal communication implies the ability to communicate effectively with others through a variety of symbolic means. As a cornerstone objective of liberal study, students' achievement of these skills is not the sole responsibility of the professional faculty. Professional fields can be differentiated, however, in the extent to which they accept these goals as legitimate and ensure these applications by students in different professional settings.

In the journal literature, the greatest proportional attention to interpersonal communication competence occurs in engineering, pharmacy, and business, the smallest proportion in social work, library science, and journalism. As shown in table 8, the attention to interpersonal communication in the journal literature is not congruent with faculty members' desired emphasis. It is possible that the most extensive discussions are found in fields where these skills traditionally have been neglected. Journalism educators, for example, discuss communication competence in all articles but in a different sense from the other fields.

Despite considerable general concern about the writing skills of today's college students, faculty in several profes-

TABLE 8
INTERPERSONAL COMMUNICATION COMPETENCE

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
Engineering	Journalism	92%	Law	95%
Pharmacy	Education	77%	Nursing	95%
Business	Law	76%	Journalism	92%
Low	**Low**		**Low**	
Social work			Pharmacy	79%
Library science	Engineering	47%	Architecture	77%
Journalism	Architecture	37%	Library science	76%

sional fields are specifically concerned about other aspects of communication. The health professions (medicine, nursing, pharmacy, and dentistry) seem particularly concerned with those interpersonal communication skills that help health professionals become empathetic and responsive to the needs and feelings of their patients. Medical care may be becoming more efficient, but it is not yet sufficiently patient-centered (AAMC 1984; Comstock et al. 1982). Because the interaction between physician and patient provides information for making clinical decisions as well as establishing a physician-patient relationship, it is viewed as critical for treatment and compliance (Stillman et al. 1983). For the medical or nursing student, the ability to obtain a complete and accurate medical history is essential to a clinical diagnosis. Additionally, however, genuineness and nonpossessive warmth, in addition to empathy, are especially important when dealing with patients (Streit-Forest 1982). If longer-term studies confirm this relationship, the development of a capacity for empathy and other personality traits among medical students may be more actively attempted.

Techniques currently used to develop the interpersonal communication skills of medical students include role playing, simulations of interviewing techniques, and videotaping actual cases of patient-staff interactions (Dickinson, Huels, and Murphy 1983). Developing interpersonal communication skills among nursing students may include a program to promote positive attitudes among the caregivers of the elderly. Techniques in such a program include game playing, trigger films, guided fantasies, and the use of analogy, with the intent to recognize self-feelings, become aware of misconceptions, and develop positive attitudes toward working with the elderly—and ultimately to improve patient care.

In a field quite different from medicine, educators in library science have special approaches to teach students to deal with disabled persons. The critical factor is educating librarians to promote positive attitudes so that disabled persons come alive as individuals of ability (Lucas 1983). Several courses stress library services to people who are blind and physically handicapped, mentally retarded, learning disabled, or emotionally disabled. Learning approaches include simulations of disabilities, volunteer projects with disabled or institutionalized people, and site visits to libraries in institutions.

Pharmacy also pays considerable attention to interpersonal skills, possibly because pharmacists increasingly are involved in patient and physician contact. The 1975 report of the Millis Commission, in its sweeping analysis of the state of pharmacy and pharmacy education, cites the need for pharmacists to become health educators (Lezberg and Fedo 1980). The pharmacist's role is expanding, moving toward a more service-oriented, clinical role; dispensing drugs must incorporate communicating information about the drugs to patients. Patients often do not comply with instructions, and pharmacists therefore need to become more assertive and better able to communicate the importance of their message. A systematic program of classroom instruction to reduce apprehension about communication in pharmacy students is one example of an attempt to improve interpersonal relations (Berger and McCroskey 1982). Role playing and assertiveness training have been successfully implemented as techniques to improve the communication skills of pharmacy students (Kimberlin 1982).

Studies of dental students reveal their need for instruction in diverse interpersonal areas, including communication with staff, coping with patients' fears, humane collection procedures, and reconciling patients' needs (Godwin et al. 1981). Various techniques have been successful, including one-to-one feedback with dental students and their patients and videotaped simulations of interactions between dentists and patients. Analysis of actual situations can provide students with insight into both the patient and the provider that appears unattainable by other techniques.

Educators and social workers are concerned with changing and expanding roles in society. Teaching interpersonal skills to undergraduates in social work can be viewed as one effort within a larger thrust to identify and teach technical skills (Toseland and Spielberg 1982). Without specific training in these helping skills, students remain at low levels of helpfulness.

Architecture, business, and engineering frequently translate interpersonal communication into the ability to work with a team, but these professions are also concerned with writing skills. Engineers are said to spend almost one-third of their time in some kind of writing, and the ability to write effective letters, reports, memoranda, and proposals is very important. Keeping journals is one way of incorporating writing in an engineering course (Selfe and Arbabi 1983); such journals give engineering students an opportunity to practice the communication skills that the field demands.

In accounting, faculty are concerned that students know how to conduct one-to-one sessions, how to make presentations to large and small groups, how to prepare presentations for conferences, and how to write memos and summaries for executives. Benefits of this type of training include the recognition of interpersonal interactions that occur in group activities (Coe 1983). Because the inability to communicate is often cited as the greatest deficiency in junior staff accountants, assertiveness training for accountants is a technique that can improve interpersonal skills. Programs have been developed that integrate the teaching of effective writing skills with regular accounting courses (May and Arevalo 1983). Assignments resemble on-the-job technical writing tasks a professional accountant might encounter. In addition, role playing and internships with accounting firms offer students experience in interpersonal communications. The Federation of Schools of Accountancy's first lyceum focused on the development of interpersonal skills in a simulated professional setting. The program was designed to help bridge the transition from the classroom to the practice of accounting (Williams 1983).

The characteristic that is believed to make law a profession, rather than a science or a technique, is its dealing with people's problems rather than objects or objective phenomena (Hunsaker 1980). Thus, law school curricula involve communication skills as well as cognitive skills and other types of competence. Interpersonal communication skills offered in some law curricula include interviewing, counseling, negotiation, mediation, legal decision making, and group processes.

Integrative Competence

Integrative competence is the ability to meld conceptual, contextual, technical, and interpersonal competence so as to make informed judgments about appropriate professional strategies to be employed in practice. Integrative competence has also been defined as "professional judgment" (Anderson 1974), but among professional educators, the use of the word "integration" relates more closely to the process by which this competence is acquired. Exhibiting integrative competence implies that a cognitive process has occurred, employing capabilities such as reasoning, decision making, and problem solving acquired through prior knowledge and experience. Such a process involves not only decisions about which strategy should be employed but also decisions concerning issues of magnitude like "how much" and "in what sequence." Although little is known about this process when specifically focused on problems of professional practice, it may be assumed similar to other applications of problem solving. In general, educators and psychologists are concerned with developing a better understanding of such cognitive processes and how they can be developed.

A hallmark of university-level professional preparation programs, one that distinguishes them from occupational programs in general, is the conscious attempt to integrate theory and practice. This challenge also differentiates college or university professional study from the basic disciplines concerned primarily with theoretical knowledge. Although the distinction may grow fuzzy at advanced levels in some fields (chemistry, for example), the professional fields are clearly unique among departments in a university in their responsibility to provide real or simulated opportunities for integration to undergraduate or beginning professional students. Despite extensive experience in arranging such opportunities, in the judgment of some, "those looking to professional education as a model for integrating careerism and vocational training with the more traditional modes of undergraduate and graduate education will also find it wanting" (Nyre and Reilly 1979, p. 38).

One problem is that work experience is an important element in the perfection of integrative competence. Although their mastery may remain incomplete, students can be directly taught the necessary conceptual knowledge and technical skills through standard academic procedures. But factors such as judgment and problem-solving skill are more difficult to nurture within the time constraints of entry-level professional preparation programs. Professional educators expect new graduates to have begun to develop integrative competence, but they typically would not judge them to have fully achieved this expertise, which may continue to develop with professional maturity to the point of mastery (Jarvis 1983).

After a career has begun, however, integrative competence may be a crucial factor in distinguishing the merely competent professional from the acknowledged expert. A recent study of practitioners in the fields of engineering, architecture, management, psychotherapy, and town planning, for example, found that a kind of "reflection-in-action" characterized outstanding professional practice (Schon 1983). Others who have examined physicians' behavior in medical problem solving report that considerable variability exists in the range of clinical reasoning and inquiry, qualities that are associated with integrative competence (Elstein, Shulman, and Sprafka 1978).

Given the importance of integrative competence, its acquisition by students should be a significant and carefully defined outcome of professional preparation programs. Yet, viewed as a competence, it presents dilemmas for program developers. More typically, integration is seen as a "process" rather than an outcome, fostered by providing students with opportunities for application in a clinical or field setting intended to represent the real world of practice. Such opportunities provide a connection between the world of professional preparation and the world of the professional practitioner that changes the student in usually undocumented ways.

As field or clinical experiences provide opportunities for integrative competence to develop, they also serve the function of socialization by providing mediated entry into the world of work (Lortie 1975). During such experiences, students may recognize dichotomies that had not previously come to their attention. To illustrate, students may notice that faculty sometimes do not integrate their own roles but separate their interests along dimensions of theory or practice. As integrative competence is fostered under the guidance of clinical faculty, students confront issues of the relevance and utility of conceptual knowledge as well as uncertainties faced by practitioners. Introducing such experiences into the curriculum means that students must be provided with appropriate supervision to help them deal with these new and often perplexing observations. Unquestionably, unusual academic burdens are sometimes placed upon clinical or field experiences and on students' abilities to cope.

In terms of the percentage of journal articles devoted to integrative competence, education and engineering publish such articles relatively more frequently than other disciplines, while architecture and social work are relatively less likely to publish articles on this outcome (see table 9). In this survey, faculty members in nursing and social work believe integrative competence should be very highly emphasized. Faculty in journalism, business, and law are least likely to sponsor integrative activities, but even so over 80 percent of the faculty in these fields report some formal or informal educational activities.

Most of the literature about integrative competence focuses on matters related to mediated work entry. With the exception of law and journalism, the professional preparation programs provide clinical and field experiences within the curriculum. In fields that provide clinical work, such matters as the extent of clinical experiences, the management of activities, the appropriateness of practice settings, the roles of clinical faculty, the evaluation of students' performance, and the usefulness of real world simulation frequently are addressed. This discussion is organized around two sets of fields: professional studies

TABLE 9
INTEGRATIVE COMPETENCE

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
Education	Nursing	76%	Architecture	98%
Engineering	Social work	74%	Social work	97%
			Nursing	97%
Low	**Low**		**Low**	
Architecture	Business	51%	Law	88%
Social work	Architecture	51%	Journalism	86%
	Law	50%	Business	82%
	Engineering	44%		

without institutionalized field experiences and those with such experiences.

Professional studies without institutionalized field experiences

The literature in law and journalism reveals continuing debate about whether field or clinical education should be formally incorporated into the curriculum (Condlin 1983; Garrison 1983). In law, such discussions about the need for clinical education reveal the theory/practice dichotomy in the purpose of legal education (Hegland 1982). Some legal educators believe that the training of practitioners is a secondary function of law schools. Law faculty, they assert, should engage in legal scholarship rather than in teaching skills (Hegland 1982; Summers 1984), and clinical instructors contribute little to legal scholarship (Leleiko 1979). Advocates of clinical legal education claim, however, that education based on traditional legal scholarship is sterile and far removed from the world of work, examining theoretical issues rather than preparing students to be effective practitioners (Condlin 1983; Leleiko 1979; Snyman 1979; Summers 1984).

Traditionally, law students were expected to find a summer clerkship for their clinical experience. Within the last 10 years, however, many law schools have incorporated clinical experiences into their curricula to the point where they are well entrenched and no longer marginal (Condlin 1983). Advocates argue that clinical experiences expose faculty and students to the daily operation of law, thus enhancing the objectives of both legal scholarship and preparation. Yet one analyst claims that clinical law builds too narrowly on teaching "how to" skills at the expense of underlying theoretical foundations of lawyering (Vernon 1983), contending that clinical legal education should be the forum where the "how" and the "why" become integrated. The debate about the contribution of clinical legal education reflects ambiguity about educational purpose. The issue is sometimes couched in terms of whether law school should be a "liberal and liberating study" or a professional, technical endeavor (Stevens 1983).

Like law, journalism faces issues arising from the theory/practice dichotomy, with some editors claiming that preparation programs are too theoretically based and lack sufficient exposure to the news environment (Fosdick 1979; Harvey 1982; Roosenraad and Wares 1983). Professional journalism educators, supported by the Accrediting Council on Education in Journalism and Mass Communication (which states that internships for credit may not account for more than 10 percent of the total hours in the major field), advance opinions that internships should be extracurricular to the substantive program (Garrison 1983). In effect, traditional journalism educators seem to rely on the development of integrative competence following employment, even though little attention is paid to such an outcome during the preparation program (Garrison 1983). A few programs require a credit-based internship for graduation where the grade may or may not be counted in computing the grade point average, and many provide noncredit experience in publishing student newspapers. The majority, however, offer or encourage internships as a student's summer or extracurricular responsibility. As in law, advocates of a required credit-based internship suggest that the experience will introduce a healthy reality into preparation programs and that students and professional educators will benefit (Fosdick 1979; Garrison 1983).

In recognition of wide debate concerning internships, the Accrediting Council on Education in Journalism and Mass Communication established an interim committee to produce guidelines and recommendations, yet the debate continues. At the heart of the matter may be the fundamental issue of the professional credibility of journalism education. Some educators, as well as some practitioners, do not view journalism as a professional study, claiming that its skills are best acquired through on-the-job training following a liberal education. Such attitudes may foster reluctance on the part of professional journalism educators to recognize the possible value of field experience in the student's overall academic program. Perhaps this debate illustrates the problems of lifting crafts from apprenticeship status and embedding them in the college or university setting. The issue becomes that of professional identity: What are journalists? What are lawyers? What is their role in society? What education allows them to best fill the role? Should the nature of education be determined by practitioners?

Should the nature of education be determined by practitioners?

Professional studies with institutionalized field experience

Although law and journalism debate the role of clinical and field experiences in the professional program, professional educators in other areas seem to have resolved that issue and have incorporated such activities into the curriculum. In architecture, dentistry, education, engineering, library science, medicine, nursing, pharmacy, and social work, some kind of mediated work entry forms an important element of professional preparation.

In addition to the dimensions of time and experience that must be considered in program development and implementation is the factor that responsibility for instruction sometimes is shifted from the professional faculty to practitioners who act as clinical or field instructors. Confounding relationships between the two groups are perceived discrepancies in authority, remuneration, status, and attitudes toward preparation and practice. The literature about practice settings and integrative competence addresses a number of these factors in all of the fields.

In some health-related professions, such as dentistry, medicine, and nursing, internships and clinical experiences have a long tradition and are widely accepted as a vital curricular element (Keen and Dear 1983; Schofield 1984). The literature in these areas is characterized by concern about the evaluation of clinical performance competencies

(Anderson and Botticelli 1981; AAMC 1984; Davidge, Davis, and Hall 1980; Lee 1979; Wigton 1980), the impact of the experience on personal and professional attitudes (Burgess 1980; Cassidy, Swee, and Stuart 1983; Cotanch 1981; Dear and Keen 1982; Herman, Veloski, and Hojat 1983; Kahn et al. 1981; Olson, Gresley, and Heater 1984; Suess, Schweitzer, and Williams 1982), and how clinical experiences can foster clinical judgment (Bucher and Stelling 1977; del Bueno 1983; Elstein, Shulman, and Sprafka 1978; McKenzie 1980; Mazzuca, Cohen, and Clark 1981; Suess, Schweitzer, and Williams 1982).

Although pharmacy is considered part of the health care service continuum, pharmacy educators are discussing a somewhat different set of issues about integrative competence. In part, this difference seems to grow out of uncertainty about the role of the pharmacist. As late as the 1960s, pharmacists were prepared as technologists with a focus upon preparing and dispensing drugs. This role, however, served a less important purpose as drug manufacturers began to prepare materials in various dosage forms (Vogt, Montagne, and Smith 1981). Consequently, pharmacy educators introduced the concept of clinical pharmacy education, which placed less emphasis on quantitative and physical skills and more emphasis on the medical aspects of pharmacy.

Current programs are designed to permit pharmacists to make clinical judgments about patients' treatment; thus, students take clerkships in surgery and other medical specialties. These courses, supporting a medical orientation, were incorporated into the curriculum at the expense of earlier foundations courses. Consequently, the current scene reflects attempts to resolve the theory/practice dichotomy, with many suggestions about how to achieve rapport between basic and clinical faculty (Russo et al. 1983; Smith and Swintosky 1983).

A common characteristic of the education of teachers and social workers is a strong component of field experience. In many teacher education programs, at least half of the professional coursework may occur in classroom observation or in practice teaching. Similarly, master of social work programs strongly emphasize practicums as important educational vehicles designed to provide mediated entry into the work world. Recognizing their importance, the literature in education and social work suggests that guidelines for students' expected performance need to be more clearly specified and integrative field experiences more effectively linked to other aspects of the preparation program (Alvermann 1981; Dwyer and Urbanowski 1981; Hodges 1982; Judah 1979; Kettner 1979; Larsen and Hepworth 1982; Simpher, deVoss, and Nott 1980).

In both education and social work, relationships among university or college faculty, professional practitioners, and clinical faculty represent areas of concern and uncertain expectancies (Applegate and Lasley 1982; Conte and Levy 1980; Frumkin 1980; Goodman 1983; Kilgore 1979; Kolevzon and Biggerstaff 1983). As in other professional preparation programs involving real-world experiences, for example, the attitudes of the clinical or field faculty about education and technique may differ widely from those held by the professional faculty. Views are diverse about whether such discrepancies weaken or strengthen the program (Alvermann 1981; Applegate and Lasley 1982; Conte and Levy 1980; Judah 1979; Kilgore 1979; Shur 1979; Zeichner and Tabachnick 1981).

Many teacher educators (and practitioners) argue that the amount of time given to practice teaching is far too short in relation to expectancies associated with the experience and suggest increased amounts, including full-year internships (Kunkel and Dearmin 1981). The timing of such activities is also at issue, with suggestions that field contacts made early in the program are likely to enhance the value of the conceptual coursework (Denton 1982).

Engineering and architecture are both applied fields with a focus on creation and problem solving in the natural environment. Although some engineering skills can be applied in class settings using a variety of simulation devices (Nadler and Seireg 1982), many engineering educators advocate the use of cooperative internships with employers as a means of enhancing students' professional development (Houze and Simon 1981; Pierce and Birmingham 1981).

In a number of fields, modern technology may help to bridge the gap between theory and practice in a way that presents a compromise for proponents and adversaries of field experiences. Educators have proposed the use of games to simulate reality for students of architecture (Bender 1979; Bonta 1979; Sanoff 1979) and the use of videotapes as a resource to supplement and extend clinical experiences (del Bueno 1983; Liu et al. 1980; Schoonover et al. 1983). Perhaps outcomes of integrative activities can be more easily defined and ensured by working within particular domains where students can find opportunities to gradually understand practice settings. For example, one could imagine progressive experience in three domains: laboratory or class versions of the real world, simulations of the real world through technology, and practice in real-world settings. The 1970s saw universities accede to students' demands for more integrative experiences to increase relevance and a real-world sense of becoming a professional (Nyre and Reilly 1979). Perhaps the 1990s will combine advances in technology with new understandings from cognitive psychology to produce new ways to structure such activities and to ensure the development of professional problem-solving skills.

Adaptive Competence

Adaptive competence is the graduate's ability to adjust to new conditions inherent in a rapidly changing technological society. Because professional practice is dynamic rather than static, adaptive competence implies a futuristic problem-solving orientation so that graduates can anticipate and prepare for changes that might affect their work. More specifically, adaptive competence is the propensity to modify, alter, or change elements of professional practice or professional community; it is a capacity advocated as a mechanism to ensure relevant and controlled professional change (Hughes et al. 1973). It may be viewed as an extension of integrative competence.

Adaptive competence is a three-part process: (1) sensing and detecting changing conditions in the internal or external environment that affect practice; (2) acknowledging the need to alter or adapt some mode of functioning; and (3) taking steps to initiate or accommodate the changes required, such as learning new skills (technical), embracing new knowledge (conceptual), or, perhaps, refocusing practice to meet new market demands (contextual). Thus, adaptive competence allows one to initiate or implement changes either as an individual practitioner or in the professional community (Colson 1980).

Discussion of adaptive competence in professional preparation incorporates two major themes: (1) those changes affecting society that are likely to change the qualities and skills needed in the profession; and (2) new modes of teaching that use technology and thus are transmitted to students as new professionals.

Societal changes affecting professional practice

Technological advance clearly has exerted intensive pressure on professional preparation. The strong influence of technology on professional preparation, either directly in the classroom or indirectly through such ramifications as increased costs, is evident in the literature of each professional program. As changes occur in the workplace, educational curricula and faculty attempt to keep pace with the advances; in fact, journalism students must be prepared for new technology even before its development (Adler and VandenBergh 1984). Many authors lament the slow progression and adoption of technological innovation in the preparation programs (C. Anderson 1983; Roepke 1982; Romney 1983; Ronald 1979; Schroeder, Cantor, and Kurth 1981; Speedie 1980; Wallert 1982), and the Association of American Medical Colleges has recommended that its members establish an organizational unit with specific concern for expanding technology (AAMC 1984).

In the area of societal and professional changes, one focus is on use of technology for the practice of the future (Loe 1981), another on new specialty areas and new systems for delivering services. Medicine is concerned with the need for improved information management that assists physicians in scientific analysis of clinical issues (Barondess 1981). Library science educators question who their service recipients are and should be and how technology will define this issue (Association of American Library Schools 1981). Pharmacists embrace changes in technology and service delivery to expand their practice into such areas as pharmacy psychology, behavioral pharmacy, and public health pharmacy (Bush and Johnson 1979; Dolinsky 1979; Johnson and Wertheimer 1979). Social work educators discuss the preparation program with respect to the changing nature of public agency practice (Gibelman 1983).

Indeed, adaptive competence requires that educators in the professions consider the ways in which students are taught to cope with sweeping technological and societal changes and the resulting complexity. Many authors believe it can be accomplished by facilitating more versatile skills of scientific inquiry.

New modes of teaching

Some professional educators stress the importance of teaching real-world "solution finding"—how to ask the right questions, gather the pertinent information, and promulgate life-long learning (Nadler and Seireg 1982). Others believe that liberal education is required to produce a versatile graduate able to deal with diversity and change (Hodges and Lichter 1980). Indeed, one can speculate that an emphasis on adaptive competence might be a key to bridging the traditional gap between liberal studies and specialized professional education. In architecture, for example, the teaching of history can help students better understand their professional heritage and envision potential future scenarios (Creese 1980; Hubbard 1980). Dental students can be taught criteria for examining the reliability of information and developing a healthy skepticism for dogma and unfounded fad (Loe 1981). In education, writers espouse the need for "generative teachers who can take any environment under any circumstances, with any budget, and work with any child," using internalized theories, a philosophical basis, innovation, and self-assessment (Jordan 1979, p. 14). Nursing educators, for example, fault professional education that consists of a body of content evoking responses to a narrow range of clinical cues (Cantor, Schroeder, and Kurth 1981). In essence, students and graduates must be able to think about familiar problems in unfamiliar ways (Rango 1981).

Adaptive competence is also manifested in narratives in nursing, pharmacy, architecture, dentistry, and social work that describe and advocate improved communication and collaboration among professional fields (Collier 1981; Curiel et al. 1979; Goyan 1981; Scott et al. 1983; Turnbull 1982). Contrary to previous competitive modes, professionals appear to be exploring interdisciplinary collaboration as a means to address multifaceted, complex problems. In one team model, for example, multiple disciplines work together in educational and practice settings to solve particular dilemmas (May 1979). And, in an increasingly small world, preparation for international involvement is assuming new importance in the curriculum as students in various fields study languages, international relations, and government (Knepler 1982; Wakeland 1982).

The professions appear to be confronting substantial social changes and to be tugged by multiple forces, including changing knowledge and values, external demands of society, and more aware, educated consumers (Bennett 1984; Gessner, Katz, and Schimpfhauser 1981; Loe 1981; Meskin 1980; Porter 1979). In dealing with the complexities and dilemmas of practice, educators increasingly recognize the need to help graduates develop more flexibility and problem-solving capabilities. Thus, a frequently raised issue is how professional preparation programs will provide the education required for complex, multidimensional tasks (Goodman 1981).

Although a large amount of literature on change processes appears relevant to the practicing professional, fewer articles in the educational journals directly discuss how to incorporate a sense of the need for future change as part of students' professional preparation. Nursing, library science, engineering, and business address this issue most frequently, law, dentistry, and journalism least frequently (see table 10). Interestingly, engineering and business faculty see this competence as relatively unimportant for new professionals and cite few educational activities directed at its attainment.

The area of adaptive competence appears to be a fruitful one for future consideration and study in professional education. Although a substantial need is apparent to develop this competency, few authors have addressed its multiple components or the educational practices designed to facilitate its development for students. Much of the literature that represents adaptive competence focuses on specific elements such as the use of computers or interdisciplinary collaboration. While descriptions of particular teaching methods and some visionary rhetoric are evident, empirical studies examining any outcome akin to adaptive competence are lacking.

Summary

Although authors devote most attention to competences that are field-specific, such as conceptual knowledge and

TABLE 10
ADAPTIVE COMPETENCE

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
Nursing	Library science	57%	Nursing	72%
Library science	Nursing	52%	Architecture	60%
Engineering			Social work	58%
Business			Library science	58%
Low	**Low**		**Low**	
Dentistry	Engineering	37%	Business	34%
Law	Business	37%	Pharmacy	30%
Journalism	Architecture	33%	Engineering	29%
	Law	27%		

technical skills, all professional fields are concerned with educating students about the context within which their profession is practiced and with the development of various interpersonal communication skills. All fields examined in this survey are actively debating the nature and function of experiences that assist students to integrate theory, practice, context, and interpersonal communication skills. Much less discussion focuses on the necessity to adapt professional practice as society changes.

PROFESSIONAL ATTITUDES

The six facets of professional competence described in the previous section are based on reasonably distinct spheres of behavior and knowledge that influence professional practice. Although some overlap occurs among professional competences, the notions professional educators have about them are reasonably clear. Explicit curricular experiences are designed to teach most of the professional competences, and in some areas procedures exist to test whether graduates have achieved them.

The professional outcomes discussed in this section are more elusive dimensions that are often considered to be part of "becoming professional." Academic programs may or may not consciously articulate these attitudinal objectives, and, frequently, no specific curricular experiences are designed to achieve them. Rather, the development of professional attitudes is part of a relatively informal socialization process that may begin when the student decides to pursue preprofessional or professional education and continues through at least an early stage of his or her career.

The development of professional attitudes is part of a relatively informal socialization process. . . .

On the average, professional attitudes are less frequently discussed in professional journal literature than are professional competences. Overall, slightly more than 10 percent of the articles reviewed for this monograph were devoted to professional attitudes. Although professional educators in the socially oriented and helping fields view these attitudes as quite important for graduates to possess, they are rated as much less important by the enterprising fields, such as engineering, business, architecture, and law. In general, these attitudes—career marketability, professional identity, professional ethics, scholarly concern for improvement of the profession, and motivation for continued learning—receive less emphasis in all professional preparation fields than the more widely recognized and more readily measurable professional competences.

Career Marketability

Career marketability is defined here as a broad attitudinal outcome, to distinguish it from job market forces that influence professional preparation. The concept suggests that graduates not only can meet professional entry standards but also are competitive candidates for professional practice and have an education that makes them reflective about the future course of their own careers. This outcome is, of course, related to job market factors, but it implies additionally a graduate's ability to realistically assess the market, consciously develop knowledge and skills that are most essential to a professional future, present his or her credentials effectively, and plan ahead so that, as the market changes, opportunities will be enhanced rather than restricted. Because this responsibility is placed upon students rather than left to the winds of economic and social change, career marketability is classified as an attitude to be nurtured rather than as a competence. For the professional preparation program, nurturing such an attitudinal outcome requires conscious assessment of and responsiveness to the dynamics of the professional job market as well as substantial program guidance for students. In rapidly changing professional fields, the concept of career marketability may overlap with that of adaptive competence.

Faculty were queried regarding the emphasis that should be placed on achieving qualifications that exceed basic entry-level requirements to make graduates competitive applicants for positions. Faculty in most professional preparation programs think of career outcomes in fairly concrete terms—for example, how many graduates pass the bar examination, how many obtain positions with prestigious firms or agencies. Similarly, few articles in the literature could be classified as discussions of "career marketability" as defined here rather than as articles focused on job supply and demand or obtaining an initial position. Perhaps the concept of marketability must be rephrased to encompass more clearly its dimensions for guidance.

One might expect the greatest concern with career guidance to be found in professional fields where the level of supply and demand is becoming problematic. A search of the literature does not confirm this expectation, however. The highest proportion of journal articles regarding career marketability are in library science, medicine, and business. In this survey, nursing, social work, and journalism reported the highest ideal emphasis on this outcome, while faculty in education, nursing, and architecture most frequently reported particular educational activities designed to assist students in "being marketable" (see table 11).

Some professional fields devote attention in journals to the long-term career implications of changing qualifications needed by their graduates. Professional educators in

TABLE 11
CAREER MARKETABILITY

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
Library science	Nursing	59%	Education	89%
Medicine	Social work	58%	Nursing	85%
Business	Journalism	56%	Architecture	82%
Low	**Low**		**Low**	
Too few articles to distinguish	Engineering	31%	Law	53%
	Architecture	26%	Business	44%
	Law	25%	Journalism	41%

library science, for example, appear to be acutely aware of the importance of socialization in producing librarians who are better equipped to face their constantly evolving work environment. Electronic technology is seen as the single most important influence on the library science curriculum as library education makes the transition to library and information science education. Thus, library science educators are concerned that librarians of the 1980s are skilled in computer use as well as in cataloging and classification (Downing 1981). Because many library science graduates are not working in libraries but in business and industry (Gleaves 1982), library educators are discussing whether joint or separate graduate programs provide better career potential for graduates (Marchant and Wilson 1983).

The need for graduates of teacher education programs to be able to function in an expanding array of settings is particularly obvious. The literature reflects the recent period (1979 to 1984) when as many as one-third to one-half of new education graduates accepted positions (sometimes education-related) outside traditional school settings. Under such circumstances, a change of emphasis in teacher education programs can provide graduates with more choice upon graduation as well as open up new fields of inquiry (Brandt and Covert 1980).

New fields of emphasis also appear to be important in accounting education—but for different reasons. New rules and regulations in accounting are so numerous that accounting educators can barely keep pace (W. Anderson 1983). Teaching techniques stemming from such changes include preparing students directly for professional examinations, using more fully professors' prior professional experiences, teaching communication skills, incorporating computers in the classroom, and considering the problem of job supply and demand. New curricula focus on the student's career requirements, forcing faculty to examine the probable careers students will pursue and to design courses in the skills needed for those careers (Wilson 1982). For example, programs in personal financial planning are being implemented because job possibilities have increased dramatically in that field (Higgins 1983). Accounting educators are initiating job counseling for students, requiring that professors understand how to assess the market. Based on experiences of graduates and surveys of prominent employers, students are assisted in improving their presentation of themselves in seeking a job.

Based on belief that survival depends on the kinds of skills graduates have acquired, articles in engineering journals focus on the career survival of students after employment. Engineering is concerned with the need for the United States to have competent engineers to compete internationally. To help maintain and enhance the competitiveness of U.S. industries, engineering educators believe they need to continue to examine and evaluate the tradeoffs and compromises in the curriculum between the new technology (software engineering, for example) and the traditional skills on which industrial competitiveness still strongly depends (manufacturing processes and design, for example) (Alic, Caldwell, and Miller 1982). Engineers need more research skills and training in the real world before entering the job market (Alic, Caldwell, and Miller 1982), and preparing engineering students for consulting is becoming more common so that graduates can take advantage of opportunities in this growing field, particularly in environmental systems and engineering technology (Manzo 1979).

Several professional fields are considering career guidance earlier in a student's educational program. For example, pharmacy educators recommend early identification of interests so that students are exposed to relevant research and graduate opportunities (Brink 1982). Although dental educators do not devote, proportionately, a great deal of attention to career marketability in journal articles, several authors express concern about dentistry's image in the marketplace, particularly with respect to the quality of student applicants for admission (Smith 1981), and some recommend career counseling for dental students. Most dental students are so busy meeting the demands of schooling that they have little time to explore the diverse opportunities in the field or to plan their future. Dental schools have placed minimal attention on acquainting students with the large number and variety of activities that could enrich their professional lives and allow a much needed change of pace from the daily routine of private practice. Career counseling as part of the curriculum could help alleviate this problem (Zucker, Selby, and Garbee 1980).

Social work educators seem to be developing strong student advising systems, including realistic appraisals of the job market and techniques that students can use to assist in continued career development once they are practitioners (Faver, Fox, and Shannon 1983). Social work educators are particularly concerned with sex equity in their field and emphasize new research and field placement opportunities to help broaden available career options for women.

Professional Identity

Professional identity involves the degree to which graduates integrate the profession's norms, competences, and values into a conception of role. The socialization process by which professionals come to acquire a sense of professional identity is well documented in the sociological literature. The emerging professional begins to test and accept the traditions and obligations that bind the professional community (Bucher and Stelling 1977). Eventually, a sense of professional self emerges that other members of the profession share. The process is socialization and the outcome is professional identity.

Professional identity may not be independent of other outcomes but may in fact be positively correlated with a sense of mastery of knowledge and skills in the profession (Green 1981). After a seven-year longitudinal study of dental students from predental courses through the first year of practice, researchers concluded that the outcomes of professional socialization consist of knowledge, theories and principles, technique (skills), ethics, professional culture, and career plans (Sherlock and Morris 1967). A study of residents in psychiatry and internal medicine and students in biochemistry also described the outcomes of professional identity, professional commitment, and career plans as including attitude, knowledge, and skills (Bucher and Stelling 1977). In such a view, professional identity includes all aspects of what is more broadly defined as professional competence.

Although theorists have described the abstract outcomes of professional socialization, the professional literature does not clearly describe the specific outcome expectations for students. Rhetorical articles debate the need for a better developed sense of self and values through more humanistic education (Hunsaker 1980; Weinstein 1982) versus the need for "social-technical competence" to accompany interpersonal competence (Rodenberger 1981). Rather than addressing specific outcomes for professional identity, much of the literature focuses on the process of socialization.

The term "professional identity" is also used two ways in the literature. It may refer not only to the professional identity of individual graduates but also to the identity of the profession itself. This dual use occurs particularly in professional fields where practitioners strive to achieve status, recognition, or improved compensation. Although the two affect each other, an individual practitioner need not be an active crusader for professional status to have internalized professional identity as defined here.

As shown in table 12, the highest relative proportion of articles focusing on professional identity occurs in law, nursing, and pharmacy, the lowest proportions in library science, dentistry, and journalism. In this survey, the contrast among professional fields is quite sharp. The helping and informing professions, particularly nursing, social work, and pharmacy, place strong emphasis on professional identity as an outcome of professional preparation, while the enterprising professions generally consider it of much less importance. Nonetheless, even in business, which rated the importance of professional identity quite low, 65 percent of the faculty sampled cite some type of educational activity intended to address this competence.

TABLE 12
PROFESSIONAL IDENTITY

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
Law	Nursing	65%	Journalism	91%
Nursing	Social work	64%	Social work	91%
Pharmacy	Pharmacy	56%	Nursing	89%
Low	**Low**		**Low**	
Library science	Business	16%	Pharmacy	71%
Dentistry	Engineering	14%	Law	71%
Journalism	Architecture	10%	Business	65%

The reason why some fields so strongly espouse the importance of developing professional identity and others consider it so much less important merits investigation. One theoretically attractive explanation is that strong professional emphasis should accompany consensus on professional knowledge and skills. The fields generally considered to have least consensus, however, are precisely the ones that appear to see professional identity as a very important attitude to be nurtured among graduates. As has been discussed with regard to conceptual competence, many professional fields with a shorter history, such as education, dentistry, journalism, nursing, and social work, appear to lack structured paradigms and consensus as to the appropriate knowledge and skills required for practice (Frumkin 1979; Guidry 1979; Kilgore 1980; Lindley 1984; Matejski 1979; Mulvihill 1980; Roy 1979). A more reasonable explanation seems to be that professional identity is closely related to the type of client provided service.

In addition, expanding specializations within professional preparation programs seem to weaken professional socialization processes. Specialty group development implies socialization into smaller subgroups within the general profession and may oppose the maintenance of a holistic and internally consistent view of professional norms and practice. As mentioned earlier, many of the professions are discussing the need for expanded practice roles to cope with increased social complexities. Pharmacy, for example, is examining future practice in public health (Bush and Johnson 1979), behavior pharmacy (Johnson and Wertheimer 1979), and patient education (Fedder and Beardsley 1979). Other professions, such as dentistry and social work, are addressing whether graduates should be prepared as generalists, able to provide an array of services, or as specialists, able to provide in-depth services in a specific area of the field (Meskin 1980; Mulvihill 1980; Teigiser 1983).

The interaction of a profession and society also influences professional identity. Architecture, for example, is attempting to imbed itself in the social and political experiences of the times (Littman, Mayo, and Burgess 1981). The question of the client base to be served influences the expected outcomes of the development of professional identity. Writers question library science's image in the community and wonder how its services should be directed and used (Benavides, Lynch, and Velasquez 1980; Association of American Library Schools 1981). Social workers ponder the nature of their client base and question how to integrate social work with clients' needs (Benavides, Lynch, and Velasquez 1980). As society changes, professional identity is affected as professionals confront the need to provide their services where the need exists.

Professional educators are interested in whether the personalities of entrants are congruent with the "ideal professional personality" (Cain et al. 1983). Consequently, some empirical studies have examined changes in students' attitudes and values throughout the course of study. One investigator found that few changes occurred in dental students' personality traits and values throughout the educational process (Cain et al. 1983), but studies of attitude changes among medical students suggest that they become more conservative and less concerned with patients' needs, reflecting a greater realism about their ability to help others (Leserman 1980). A comparison of physicians' attitudes toward the practice of pharmacy found physicians to be more understanding and supportive of pharmacists than pharmacy students anticipated (Voris, Anderson, and Kimberlin 1982).

Different processes are used in assisting students to acquire a sense of professional identity. Most professions emphasize the use of the practice setting as a mechanism for developing identity. In medicine, the residency is viewed as the time when professional identification is consolidated (Brent 1981). The practicum plays a parallel role in nursing (Dear and Keen 1982; Olson, Gresley, and Heater 1984). Educators in medicine, education, and nursing address the anticipatory socialization of students, that is, their ability to think about the role, imagine themselves in it, and explore their beliefs and attitudes related to it (Cotanch 1981; Harvill 1981; Lasley 1980; Pataniczek and Isaacson 1981).

Although the practice setting appears to be the major mechanism for instilling professional identity, how it occurs or what exactly is supposed to occur remains unclear. Pharmacy students have more confidence and feel better prepared as professionals following an internship than before (Nuessle and Levine 1982). Despite such findings, some advocate that the process could be improved by the better integration of attitudinal objectives with knowledge and skill objectives (Kahn et al. 1981).

In contrast with architecture, law, engineering, and business, the helping professions (nursing, social work, medicine, pharmacy) attach far more importance to professional identity (see table 12) and more frequently seem to be struggling for the better integration of attitudes and values into their practice world. Even so, the specific outcomes related to professional identity are seldom identified in the literature. Rather, it is assumed that professional identity will be developed through practice.

Closely related to the issue of professional identity is the appropriate model for preparation in the various fields. The self-examinations underway in nearly all professional fields question what models (including structure, curriculum volume, and time frame) facilitate professional competence (Anderson, Kimberlin, and Hodsall 1979; Boatsman 1983; Kunkel and Dearmin 1981; Leighninger and Leighninger 1980; Merrill 1980; Rodenberger 1981). As these broader issues are resolved, the concepts of professional identity may be clarified.

The self-examinations underway in nearly all professional fields question what models facilitate professional competence.

Professional Ethics

Nearly every writer on professionalism discusses the need for practitioners to internalize the code of ethics agreed upon by the profession. Existence of such a code, sponsoring and supporting professional norms, is considered one of the hallmarks of professionalism. The code of ethics is believed to be isomorphic with a sense of social responsibility that enables the professional to apply moral judgments to professional behaviors and decision making (Anderson 1974).

While advances in knowledge and technology have extended or improved the quality of life for many, these same issues have raised complicated ethical questions to which professionals and clients must respond. In addition to individualized choices the professional must make in practice, the ethics of power exercised by professionals acting as social collectives is an issue (Larson 1977). Some authors suggest that, in contrast to the spirit of altruism or service commonly attributed to professional status, professionals are becoming exploiters rather than enablers in society as they expend more effort in seeking rewards rather than in expending services (Reeck 1982). As a consequence of these trends and complexities, interest in ethical and moral issues has been revived in professional fields. Concurrently, the teaching of ethics and values in professional study programs is assumed to deserve a central place in curricular discussions in all fields (Callahan 1977).

In spite of the discussions about the need for such content (Engelhardt and Callahan 1980) and the apparent high value placed on professional ethics by educators in several fields (see table 13), some studies suggest that most professional schools offer little systematic coursework or content in ethics. In this survey of professional educators, a very high percentage of faculty in certain fields report activities to teach professional ethics, while other fields report few activities. Other data from the survey provide some clues. When asked to judge for their own field the truth of the statement, "The professional field has reached consensus on standards of ethical conduct," 48 percent of professional educators believe (to varying degrees) that consensus exists, 42 percent that it does not. Belief that consensus exists is strongest among professional faculty in social work (74 percent) and nursing (67 percent) but weakest in business administration (27 percent), law (31 percent), and journalism (33 percent). These results are congruent with

TABLE 13
PROFESSIONAL ETHICS

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
No data	Social work	77%	Law	91%
	Nursing	77%	Nursing	89%
	Journalism	67%	Social work	85%
Low	**Low**		**Low**	
No data	Business	44%	Engineering	49%
	Architecture	40%	Pharmacy	48%
	Engineering	38%	Business	43%

faculty views of how much attention preparation programs pay to ethics as an outcome. In business, engineering, and pharmacy, over 50 percent of faculty say their programs have no activity designed to teach professional ethics.

The limited literature in professional education journals addresses the issue of ethics from two perspectives: (1) outcomes—the need for professional practitioners to confront and act on major ethical dilemmas in their work; and (2) processes—the teaching of ethics, including moral development, methods, and content.

Ethics as an outcome

Ethical behavior as a specifically defined outcome for the professionally prepared graduate is discussed only minimally, and descriptions of ethical outcomes for graduates of professional preparation programs are often ambiguous and abstract (Howe and Jones 1984; Martin 1981). Writers in social work and law note the need for students to assume an ethical perspective in contemporary practice (Brooks 1981; Joseph and Conrad 1983). In medicine, recent recommendations focus on "ethical sensitivity" (AAMC 1984). Authors in engineering, business, and law urge moral reasoning in problem solving (Fielder 1979; Willging and Dunn 1981; Wyer 1984), and nursing, law, and engineering educators describe achievement of moral autonomy (Martin 1981; Munhall 1982; Richards 1981). Additional discussions involve familiarizing students with legal as well as ethical issues in practice and differentiating between them (Hamner, Scoggin, and White 1981; Jankovic and Green 1981) and guidelines concerning the use of human subjects in professional research (Jenny 1980). Although one general expectation is that graduates will adhere to their professional codes of ethics, fewer than 10 percent of graduates from professional programs have any working knowledge of their professional codes (Reeck 1982).

Ethics as a process

A few authors in the various professional fields emphasize the teaching of ethics and debate the specifics of content and methodology (Andrews and Hutchinson 1981; Brooks 1981; Hunt 1982; Odom 1982; Sallady 1981). On the other hand, a number of authors question whether or not the teaching of ethics actually results in any changes in students' behavior or perceptions, asserting that the social environment and the nature of practice may have more important effects on the development of values than the professional curriculum (Loupe, Meskin, and Mast 1979) and that little connection may exist between the nature of the relationship between ethics courses and actual responsible behaviors (Martin 1981). Some educators believe that students already know the basic difference between right and wrong and that programs should therefore teach technical ethics or the critical evaluation of societal implications and consequences (Brown 1983). Serious doubt apparently exists concerning whether hypothetical dilemmas and texts really can help students deal later with real-life ethics and values (Sallady 1981).

Some professional educators report attempts to test the outcomes of particular educational programs. For example, studies in medicine and social work demonstrate that students taking discrete ethics courses show increased reflectiveness about moral and ethical issues, compared with students who have ethical content integrated in various courses (Joseph and Conrad 1983; Siegler, Rezler, and Connell 1982). Others advocate the use of values exploration (Cassidy, Swee, and Stuart 1983; Pignaturo and McShane 1979), case studies (Mitchell 1981), and discussion of the need for independent decision making (Dirsmith

1983). Although the interest and discussion of the need to instill ethical competence in the professions are apparent, little is being explicitly described, implemented, or empirically investigated in professional studies.

Scholarly Concern for Improvement

Graduates of professional programs who exhibit scholarly concern for improvement support the research necessary to improve the profession's knowledge base and can adapt practice to those new findings. Graduates who have adopted this attitude are dynamic rather than static professionals, are aware that professional practice is constantly changing, and feel a sense of obligation to facilitate that change. Such an attitude implies the ability to use basic research skills and interpret the results and implications of research for professional practice.

Among the professional educators surveyed (which did not include medical and dental educators), this attitude is given the lowest emphasis of all the competences and attitudes among all preservice professional preparation programs. Faculty members in nursing, social work, and library science see this attitude as deserving higher emphasis than do faculty members in law, business, and engineering. The highest proportion of articles dealing with scholarly concern for improvement is found in education, engineering, and dentistry (see table 14).

Although it may be considered less important than other attitudes, most professions acknowledge in some way the importance of transmitting scholarly concern to students at all levels of professional study. The literature indicates some attempt to do so through preparation for basic research. Understanding the scientific method for the purposes of critical inquiry, data collection, data analysis, and interpretation; development of inferences; and evaluation of practice issues are viewed as necessary parts of the educational process (AAMC 1984; Downs and Robertson 1983; Fleming 1980; Loe 1981; Zahorik 1984). For the most part, students are not expected to be experts in the design and implementation of rigorous research studies. Instead, it is anticipated that they will use scientific method in daily practice and demonstrate skills in critically reading research studies.

TABLE 14

SCHOLARLY CONCERN FOR IMPROVING THE PROFESSION

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
Dentistry	Nursing	45%	Nursing	92%
Education	Social work	36%	Social work	78%
Engineering	Library science	34%	Library science	72%
Low	**Low**		**Low**	
Too few	Law	12%	Education	33%
articles	Business	12%	Business	31%
to distinguish	Engineering	12%	Journalism	29%

Educators in many professional fields are concerned that, although this professional attitude and its concomitant base of skills are necessary and vital to professionalism, its development is often little emphasized or encouraged. Climates within the professional preparation programs tend to support teaching content and practice skills rather than the integration of scholarly concern for improvement among individual students (Cramton 1982; Downs and Robertson 1983; Fisher 1981). In some respects, this finding is surprising in view of the history of professionalism that has thrust certain fields of study into the college and university setting where inquiry is highly valued.

This paradox is partially explained by the segmented approach to research and scholarly development apparent in the professional education literature. On the one hand, some educators in nursing, law, medicine, education, and social work insist that research and scholarly awareness are integral parts of professional practice and basic preparation (Corrigan 1981; Cramton 1982; Lawson and Berleman 1982; Riegelman, Povar, and Ott 1983; Rinke 1979). On the other hand, other discussion in dentistry, law, and medicine focuses on research and scholarly concern as a separate specialization and career track, even at the level of basic preparation (Bickel and Morgan 1980; Leleiko

1979; Santangelo 1981). While research study is sometimes relegated to graduate-level programs, professionals in many fields practice without pursuing additional formal study. The apparent polarity between generating and using research continues to broaden the gap between research and practice. A key issue in all the fields is how research could be integrated into courses focusing on content and technical skills. Some professional educators believe that such integration should be part of every course (Castles 1984), while others view research as the separate domain of the faculty and of little concern to preservice students (Allen 1983). Graduate professional programs believe that the foundation of scholarly concern is built in an appropriately intellectual liberal education preceding professional preparation (AAMC 1984).

Motivation for Continued Learning

Motivation for continued learning is characterized by new graduates' interest in their own professional development and commitment to enhancing and updating their knowledge and skills. Such enhancement may take place through a variety of mechanisms—attending conferences, acquiring advanced degrees, and reading professional literature, for example. Inherent in an awareness that such learning activities will be necessary as well as in a positive attitude toward them is the recognition that the profession is dynamic rather than static and that the delivery of services changes as new knowledge, skills, and technologies become available.

Professionals' commitment to their own development and to maintaining currency in practice has long been viewed as an integral component of professionalism (Houle 1980). Not only do the professions expect members to keep abreast of new developments that improve the quality of services provided; clients expect professionals to monitor and adopt new practices that promote their investment in service. Indeed, the strongest motivation for continued learning seems to be professionals' need to update practice, while motivators like approval by peers, mandated attendance, and social interaction are secondary (Houle 1980).

In spite of the extensive literature that addresses motivation for continued learning for practitioners and graduates, the inculcation of this attitude at the basic professional

TABLE 15
MOTIVATION FOR CONTINUED LEARNING

Relative Proportion of Journal Articles	Importance of Professional Outcome		Program Has Educational Activities to Achieve Outcome	
High	**High**		**High**	
Pharmacy	Nursing	67%	Nursing	68%
Law	Pharmacy	59%	Library science	64%
Medicine	Social work	56%	Pharmacy	63%
Low	**Low**		**Low**	
Too few articles to distinguish	Architecture	37%		
	Law	35%	Architecture	43%
	Business	35%	Engineering	41%
	Engineering	31%	Business	38%

preparation level is documented or discussed very little. Occasionally, the need for incorporating the idea of continued learning in the curriculum, for integrating it into a senior capstone-type course (American Dental Association 1980; C. Anderson 1983), or for singling out for special assistance those students who appear to lack inherent motivation (AAMC 1984) is referred to in general terms. Studying the emphasis on continued learning in pharmacy programs, Walker and Lowenthal (1981) discovered that, although students agree it is important, only a very small percentage have participated in any outside learning activity.

In the journal literature, pharmacy, law, and medicine show the highest proportion of articles related to motivation for continued learning (see table 15). In this survey of faculty, nursing, pharmacy, and social work educators rate the importance of this outcome most highly, while faculty in architecture, law, business, and engineering rate it lowest. Nursing, library science, and pharmacy educators most often note the existence of educational activities designed to achieve this outcome, whereas faculty in architecture, engineering, and business report fewer such activities. The contrast between these two groups in the extent of activities reported, however, is much less sharp than for some of the other attitudinal outcomes.

The apparent lack of emphasis on promoting continued professional learning at the preservice level may be partially explained by the fact that continuing education is viewed as a practitioner's issue. Formalized continued learning is mandated for some professional fields, and professional norms make it the sina qua non in other fields. In some professions (business, for example), employers are likely to bear the significant costs of continued learning of professionals, while in others (education, for example), individual practitioners meet such costs wholly or partially. Participation in informal modes of continuing education may be deemphasized because it competes or conflicts with professional school program offerings that provide crucial program income. In fact, colleges and universities place much more emphasis on obtaining advanced degrees than on pursuing other types of continued learning (Walker and Lowenthal 1981).

Herein lies the complexity of the issue of continued learning. Rather than focusing on continued learning as a professional attitude to be cultivated, continued learning has come to be defined as a mechanism for quality control. Debate about mandatory versus voluntary learning has become dominant despite research demonstrating that professionals' inner standards of achievement are more important than mandated continuing education in enhancing knowledge and skills (Crabtree and Geiger 1983; Houle 1980; Richards and Cohen 1980; Walker and Lowenthal 1981). Clearly, important differences exist between those fields that have externally imposed requirements for continued learning (education for continuing certification, medicine for a certain number of continued education hours) and those fields with no such requirements. Perhaps, too, some fields where preparation is already at the post-baccalaureate level (law and dentistry) may feel that they have more time within the initial preparation program to prepare proficient, rather than merely competent, graduates. In medicine, specific recommendations have been made to reduce the scheduled time for students and require more independent learning that may foster the habit of independent inquiry and professional development (AAMC 1984). Certainly, the process by which motivation for continued learning is transmitted to students within the professions is an area ripe for further discussion and research.

Summary

The journal literature devotes considerably less attention to the attitudinal dimensions of education than to other professional competences. Outcomes of professional socialization are believed most important in the helping and informing professions and least important in the enterprising fields, such as business, architecture, law, and engineering. As might be expected in preservice professional preparation programs, educators seem more immediately concerned with developing professional identity than with stimulating among students longer-range attitudes, such as concern for continued individual and collective professional improvement.

SUMMARY AND IMPLICATIONS

Common Themes in Professional Preparation

In all fields of professional preparation, educators are reexamining the way they prepare graduates for entry into professional practice. In several fields (architecture, journalism, law, pharmacy, dentistry, medicine, and social work), one or two primary professional journals devoted to educational issues provide a rich array of articles dealing with the outcomes expected of professionals. Such journals appear to provide a forum for faculty discussion about issues of professional education. In other fields (education, library science, nursing, and engineering), a number of journals, often based upon specialties within the general field, deal with different aspects of education. It appears that no more than 25 percent of the faculty in each field would find a common forum for discussion of educational concerns. One field, business administration, appears to have no published forum to address concerns of professional education, although faculty keep up with societal influences and technical aspects of their field by reading sources like *Business Week* and *The Wall Street Journal*.

In discussing outcomes of professional preparation, educators devote the bulk of their time to discussing the conceptual knowledge base that students should learn, the technical aspects of skill development, and the means of integrating concepts and skills through field experiences. In those fields of professional study commonly offered in a four-year undergraduate program, considerable concern is apparent about the problem of fitting all of the essential or desirable experiences into four years. Such concerns are exacerbated by the responsiveness of the professional preparation programs to a changing society. Nearly all of the fields, but especially those providing health or information services, show increased sensitivity to dealing with clients' diverse needs and to accompanying demands for skills in interpersonal communication. Communication skills needed by new professionals clearly are judged to extend well beyond basic skills of reading and writing to include skills in group relations, a capacity for teamwork, empathy, and listening skills. Professional educators are sensitive as well to the extensive changes that technology is bringing in professional practice. These three major issues—the diversification of clients, a growing conceptual knowledge base, and the impact of technology—have

Nearly all of the fields . . . show increased sensitivity to dealing with clients' diverse needs and to . . . skills in interpersonal communication.

caused each field to engage in continual self-examination of the role and nature of professional preparation. Professional preparation is struggling to keep abreast of changes that already have significantly affected the competence that graduates must exhibit. Thus, educators seem to be devoting comparatively little attention or specific activities to "adaptive competence," that is, to explicitly calling students' attention to the need to think in advance about rapid future societal changes.

This review of educational literature in the professions found little evidence to support accusations that professional educators are unconcerned about the supporting role that liberal education plays in the preparation of professionals. In fact, while struggling with the problem of how much material can fit into the curriculum to meet the current demands of society and of employers for adequately prepared beginning professional workers, professional educators are acutely conscious and concerned that students understand the context in which professional practice occurs. Such issues seem likely to receive more, rather than less, discussion in professional settings where diverse clients and technology exert heavy impacts. Concern exists as well about how the necessary contextual competence should be achieved. Except in those fields like law, where students are already assumed to have completed a liberal arts education, professional educators show widespread discontent about current methods of providing contextual learning for students. This discontent is focused both on the seeming detachment of liberal arts courses from the real-world issues that professional graduates will face and on the contextual foundations courses offered within the professional study programs themselves. The challenge appears to be integration of liberal and professional study in such a way that the student is assisted in making meaningful or relevant translations of contextual courses with potential to undergird decisions in the practice setting.

As the student attempts to integrate conceptual knowledge, technical skills, and an awareness of the societal context in which professional practice occurs, professional educators focus on field experiences as a source of both strength and weakness in their programs. In two fields, law and journalism, active debate concerns more systematic provision of integrative field experiences. In engineering and architecture (and probably in business, although the lack of journal literature causes one to speculate), possibilities for simulated practice experiences (including laboratory or studio work on practical problems) and cooperative work programs currently appear to satisfy the need for field experience. In fields like education, nursing, social work, medicine, and dentistry, where field or clinical experiences are an established part of the educational program, attention focuses more closely on the design of that experience, the assessment of its actual outcomes, and improving links between field settings and supervisors. The balance of theory and practice seems to be less an issue than how to integrate the two.

A review of the literature in professional journals gives one the sense that socialization of students is somewhat less important than teaching them conceptual or technical skills. For most professional programs, especially those in the helping and informing fields, much of the socialization process is assumed to take place during field experience. Yet discussions focusing on the various attitudinal competences that can be viewed as products of the socialization experience lack clarity. Several structures of the educational setting influence socialization: (1) the selection of students, (2) the isolation of students from outside influences, (3) the consistency of institutional or program goals, (4) the explicitness of values and role models, (5) the provisions of opportunities for practicing responses, and (6) the provision of both positive and negative sanctions as feedback to students (Bragg 1976, p. 14). Of these elements, the greatest attention seems to focus on provision of opportunities for practice. Problem areas connected with placing the major burden of professional attitude development on field experience include lack of consistency in program goals and lack of consistency in the feedback provided to students. Relationships with supervising practitioners appear to need strengthening to model appropriate behaviors for students. In this sense, debates about whether professional ethics can be taught in the classroom pale in relation to the seeming lack of consensus in some fields between and among educators and practitioners about what ethical standards should be.

Usefulness of the Professional Preparation Outcome Framework

Drawing on previous work concerned with professions and professional preparation, this work began with a framework that envisioned the outcomes of professional preparation as being comprised of six aspects of competence and five aspects of attitude. This framework served as a guide for the examination of the professional education literature. Simultaneously, the authors were interested in determining the usefulness of the framework to facilitate discussions of instructional collaboration and assumed that such collaboration might be enhanced by examining dimensions of professional preparation in more detail than the simple dichotomy of "theory and practice," which tends to ignore the integrative and socialization aspects of professional study.

By pilot testing a survey instrument, the authors found that faculty could distinguish the 11 professional preparation outcomes when expressed in the form of competence statements for graduates. This ability to see the outcome dimensions as distinct was sustained in a survey across 10 professional fields, the details of which are forthcoming. In reviewing literature, the authors were able to categorize reliably most articles as dealing primarily with one or two of the outcomes. While the outcomes may be separable for some purposes, however, the literature review clearly shows that the outcomes are integrally linked in the thinking of professional education faculty. Furthermore, most professional fields have not articulated a relationship between specific outcomes and specific educational activities. For example, one type of educational activity—the field experience, clinical experience, or internship—carries more than the burden of assisting the student to combine conceptual knowledge and technical skills. It also is assumed that during this experience the student will draw on contextual background, visualize the possible adaptations the profession may need to make to future societal changes, and develop attitudes like a professional identity, professional ethics, and motivation to continue personal and professional development. Even so, those fields without systematic provisions for internships (law and journalism, for example) express concern that inappropriate use of these activities will weaken the preparation program and steer it in the direction of trade education.

Based on a literature review alone, the framework would need to be reconstructed to recognize more fully the overlaps and links among the various outcomes of professional preparation. One could speculate, for example, that for some professional fields the attitudes called "professional identity," "professional ethics," and "motivation for continued learning" cannot exist separately from "integrative competence" because it is the integrative field experience that primarily nurtures such attitudes. Yet some educators in fields of professional study that do not incorporate a field experience as a regular part of the program would insist that their students nonetheless develop the socialized attitudes to professional practice considered appropriate. In retrospect, the attitudinal outcome termed "career marketability" may be better seen as a process, namely career guidance. Such a process is receiving increasing attention in some professional fields.

While common themes and trends have been uncovered across the professional study fields on which collaboration conceivably can be built, one can envision that overlaps of the different outcomes of professional preparation may be distinctive for different fields. It is clear that the various relationships among outcomes for different fields may depend highly upon other aspects of the environment in which professional preparation exists. Such factors as societal influences, university support and interrelationships, and internal differences in programs appear related to the amount of discussion about outcomes and the direction that discussion may take at various times. Such issues are worthy of further exploration.

Implications for Faculty, Administrators, and Researchers

The uniqueness of the conceptual knowledge base and the even greater specificity of the technical skills taught in the various professional areas make these competence areas appear to be unfertile ground for beginning most discussions of collaboration across fields. Faculty members across professional programs may not be aware, however, that changing trends in society (to which they are responding in conceptual, technical, and communication courses in their programs) reflect new educational foci also relevant to their colleagues in quite different professional fields. Some opportunities for interdisciplinary teamwork among professional fields and with liberal arts faculty in contextual areas are readily identified. To some extent, the concept of teamwork within the health professions has encompassed such interdisciplinary efforts, but the collaborative net could be stretched much more widely. An infinite number of such opportunities exist, but this discussion is limited to three such possibilities, in addition to the obvious potential for collaboration in the area of developing technology.

The issue of paying more specific attention to diverse clients pervades all fields. To take one example only, all professional study fields—from social work to architecture and business—recognize the aging of the American population. Courses are being introduced separately into each professional study program to review the basic problems that face the elderly before dealing with specific professional problems. It is not difficult to imagine the challenge and curricular coherence of an interdisciplinary course, perhaps called "Professional Challenges of an Aging Population," with a general core of concepts drawn from the medical, behavioral, and social sciences. Such a general core could be supplemented by discussion groups to focus issues for students in various professional programs. Undoubtedly, such courses are already in developmental stages, representing an alternative to liberal arts courses considered too abstract by professional faculty.

While developing competence in interpersonal communication, one can envision a similar interdisciplinary venture among virtually all professional fields and faculty members in English or communications, where interviewing clients becomes an important professional skill. The issue of what one conveys to the client by various verbal and nonverbal gestures and by listening behaviors involves the enterprising professions that wish to retain the confidence of fee-paying clients as well as the helping and informing professions, where establishing empathy or rapport is essential to serving or treating clients.

Finally, and at a slightly different level, benefits would accrue from discussion across professional preparation fields and with social and behavioral faculty from the arts and sciences about all aspects of student socialization. Despite the differences in settings, what can be learned about the development of simulated and real practice settings, the role modeling of desirable behavior, the provision of feedback to students, and the establishment of appropriate relationships with field supervisors? Such concerns about field experiences and their role in inculcating attitudes considered desirable to advancement of the professional fields are pervasive, even in those fields where integration of theory and practice is left to students' initiative.

Administrators, of course, must develop some sense of the common threads to cultivate among professional faculty a sense of freedom to experiment with collaboration that may be educationally effective as well as cost effective. Additionally, however, for the purposes of program review and consolidation, administrators need to be aware and sympathetic to the particular struggles to improve their programs that professional faculty experience. One frequently hears speculative accusations directed at various professional educators regarding the expansion of curricular content. Engineering faculty, for example, sometimes are accused of seeking to deflect their students from contextual courses in favor of technical preparation; concerns of education faculty for a five-year program have been attributed to a quest for more credit hours (and ultimately maintenance of faculty positions) in a time of declining enrollments. Such broad-scale accusations reflect a lack of understanding of the struggles of faculty in professional preparation with the problem of curricular volume, their desire to build a sense of commitment to the professional field, and, most important, their concern for the complete and liberal education of professionals. For administrators and the public to view these struggles as a sign of weakness or self-serving behavior is erroneous. As "a profession is a sociocultural construct whose contours are constantly shifting . . ." (Geison 1983, p. 8), turbulence in professional education is in fact a sign of strength.

Administrators . . . must develop some sense of the common threads to cultivate among professional faculty a sense of freedom to experiment with collaboration.

Administrators have a responsibility as well to listen carefully to professional educators when developing program review criteria so that they can select appropriate measures of quality. Examples of possible errors that could result from lack of discussion are particularly obvious in the area of job placement statistics. As presently conceived, journalism educators are least likely of all the professional fields to consider their programs as preparation for a specific vocation. Given the emphasis of their accrediting agency on restricting rather than expanding professional courses and the fact that many employers select individuals without specific training for journalism positions, it might be quite inappropriate to judge a journalism program by its record of placing graduates in traditional communication posts. Similarly, nursing attempts, more than most other fields, to give undergraduate students a strong sense of what research can do to improve the profession, provides many opportunities for specific continuing education, and has few programs for doctoral-level degrees. It would be patently unfair to judge a nursing program on the basis of how many students immediately enter graduate school. Adjusting program review criteria to reflect the varying needs and orientation of professional fields is a time-consuming task requiring a sincere effort by administrators and faculty review committees to understand a professional field different from their own. Given its potential for relieving some current university tensions, however, it is a worthwhile effort.

As mentioned earlier, most of the articles concerning the outcomes of professional preparation are exhortative rather than empirically based, which is surprising, because professional preparation is typically in a better position to demonstrate that students achieve concrete outcomes than are general or liberal education programs. A substantial number of followup studies of graduates, exploring nearly every dimension of competence and attitudes, have been conducted in the health professions, particularly medicine and dentistry. One may assume that such active research programs are the result of federal support of evaluative activities within the context of various grants for medical education.

The evaluation studies in the health professions, which would merit treatment in a separate research report, provide a model that other professional fields have not followed. In most other fields, the studies were parochial and idiosyncratic and typically the effort of one or two interested faculty members or a doctoral student.

The literature contains little evidence that professional preparation has accepted the challenge of defining student outcomes and designing research to verify their achievement. Nor, would it seem, have college and university administrators been likely to fund research and development that would enable use of a common outcome and data collection framework across professional fields—with appropriate modifications for the special aspects of that field. Despite the fact that over 50 percent of college students generally are pursuing professional programs, most discussions of outcomes, even in large universities, seem to focus on the outcomes of the first year or two of liberal or general education presumed to be common to all students. In professional preparation, few studies encompass broad enough samples of students, graduates, or programs to begin to build models.

Professional schools may be assumed to pay more attention to outcomes because of accreditation and licensing or certification procedures. A review of the accreditation guidelines for the professional fields indicates that the outcomes discussed here are made explicit only in the field of architecture (Hagerty and Stark 1986). This finding causes one to question the common assumption that accreditors are rapidly introducing specifications or measures for outcomes.

Articulation of the desired outcomes is a necessary precursor to measurement. The framework used here for categorizing educational outcomes has helped to clarify that many assumptions about the extent to which graduates possess "desirable" outcomes are untested. The issue of whether educational processes assumed to foster the outcomes actually do so is even more ambiguous. Research is needed to assess the major work being conducted in colleges and universities, namely, the education of graduates prepared for occupations commonly thought of as professional. Several steps are necessary: (1) specification of the competences and attitudes to be developed among professional graduates, generally and specifically, for each professional field; (2) assessment of the extent to which graduates achieve the outcomes; (3) identification of links among specific educational processes and specific outcomes; and (4) better understanding of the extent to which the outcome is actually useful and important in professional practice.

APPENDIX A

METHODOLOGY FOR THE STUDY

Review of Journal Articles

Professional preparation fields to examine were chosen largely on pragmatic grounds: The objective was to view 12 fields commonly referred to as "professional programs" offered at both public and private collegiate institutions, for which relevant educational journals could be located at the researchers' university library. This pragmatic criterion eliminated such fields as theology (seldom offered at public universities) as well as agriculture and veterinary medicine (because library resources were not available). Fields such as art and music were not included because, although careers in the arts certainly may be viewed as professional, these programs are seldom referred to on campuses as being among the professional programs.

An initial list of 30 journals potentially containing articles pertinent to educational issues in the 12 fields was constructed by examining the frequency of indexing in the ERIC data base and by consulting with professional colleagues and librarians. Members of the research team examined all of the potential journals for a particular field. Next, they defended to the team the rationale for including one or two journals devoted to the educational issues included in the broader theoretical framework guiding the research (see Stark et al. 1986). Twelve journals representing 11 fields were selected for further study. For the field of business administration, the team located no currently published journal that devotes substantial space to educational issues but did review occasional articles in the *Journal of Accounting* dealing with issues broader than specific classroom procedures.

Using a decision tree coding scheme, four members of the research team coded all articles published during 1979 in the selected journals to represent their primary and secondary thrusts: professional preparation outcomes; external, internal, or "within university" influences; or specific curricular recommendations and studies. Within each of these general categories, they also coded articles for designated subcategories. Thus, for articles dealing with outcomes, the coder selected one or more of 10 professional outcomes discussed in this report. (At that time, the theoretical framework grouped professional ethics and professional identity as one category.) Based on recoding a random selection of 30 articles by other members of the team, intercoder reliability was found to be over 90 percent. The need for revision and clarification of some categories was noted and implemented.

Using the revised coding scheme, all articles in the same journals published from January 1980 through December 1984 were then coded. Because highly reliable coding was not essential to the purpose of identifying issues and trends in professional preparation, individual members of the team exclusively read and classified two or more related fields of professional preparation as closely allied as possible to their own academic backgrounds (information-providing professions, helping professions, and enterprising professions). This procedure undoubtedly sacrificed objectivity but allowed team members to become familiar with terminology unique to the particular professions, to identify trends and issues in potentially similar professional fields, and to concentrate reading from other related sources in a few fields. The number of articles coded is shown in table A-1.

A computer sorting program was used to calculate frequencies of articles' occurrence by professional field as well as the selection of subsets of coded articles. The percent of articles dealing with professional preparation outcomes and, more specifically, with professional competences and professional attitudes was calculated for each field. Despite early evidence of intercoder reliability, these percentages are not reported, lest they imply greater precision in classifying the articles than is warranted. Rather, the interquartile deviation (semi-interquartile range) of the percentages of articles focusing on each professional preparation outcome was calculated (the deviation around the median percentage). The tables in this report show those professional fields where the percent of articles devoted to an outcome was "high" (above the third quartile of percentages) or "low" (below the first quartile of percentages).

Some outcomes of professional preparation (for example, technical competence) showed substantial differences in the percentage of journal articles devoted to the discussion in different professional fields. Other cases showed little diversity, typically because discussion of the outcome was not common in the journals of any field. The interquartile deviations and percentage ranges for each outcome of professional preparation are given in table A-2.

Following discussion of the coding results, team members returned to articles they had coded to annotate each article and classify it as A (very important), B (important), C (some possible value), or W (worthless), according to how directly it addressed one of the categories and subcategories in the theoretical framework of professional preparation. Articles classified as worthless were generally detailed, methodological, or technical articles (for example, "how to prepare slides for a laboratory experiment," "how to evaluate student journals fairly"), articles that dealt with outcomes of graduate, postservice, or continuing education (excluded from the study by prior agreement), or articles reporting on professional preparation in countries other than the United States.

The principal investigator then reviewed the entire file of 2,933

TABLE A-1
ARTICLES REVIEWED BY FIELD[a]

Field	Year of Publication 1979	1980	1981	1982	1983	1984	Total
Architecture	18	30	24	23	9	–	104
Business administration[b]							26
Dentistry	87	85	83	54	33	24	366
Education	54	56	57	47	48	20	282
Engineering	50	47	31	36	23	6	193
Journalism	19	35	31	29	33	15	162
Law	17	15	30	27	24	9	122
Library science	27	13	14	16	16	4	90
Medicine	76	158	142	155	142	46	719
Nursing	81	91	83	76	86	46	463
Pharmacy	43	50	59	44	55	–	241
Social work	38	38	16	31	26	16	165
Total							2,933

[a] It was possible for an article to be classified as dealing with both outcomes and some other topic, for example, influences of external forces on the professional preparation field.

[b] A few pertinent articles from the *Journal of Accounting Education* were reviewed.

TABLE A-2

INTERQUARTILE DEVIATIONS AND PERCENT OF JOURNAL ARTICLES ACROSS ELEVEN FIELDS FOR EACH PROFESSIONAL PREPARATION OUTCOME

	Quartile Deviation	Range of Percent of Articles	Median Percent of Articles
Professional Competences	8.5	10–62	26
Conceptual competence	4.5	8–38	22
Technical competence	14.0	8–68	38
Contextual competence	6.5	1–50	17
Interpersonal communication competence	4.5	1–35	14
Integrative competence	8.5	1–33	17
Adaptive competence	2.0	1–20	6
Professional Attitudes	**2.0**	**0–25**	**9**
Career marketability	2.0	0–15	2
Professional identity[a]	4.0	5–35	12
Scholarly concern for improvement	2.0	0–12	5
Motivation for continued learning	3.0	0–12	4

[a] Includes professional ethics.

bibliographic entries, including annotations and codewords, and, to be inclusive rather than exclusive, restored to the outcome file those articles that might merit reexamination. In particular, restored articles focused on curricular studies and recommendations that appeared to have potential to illuminate articles dealing more explicitly with outcomes. The classification of articles at this point is given in table A-3.

Subsequently, it became clear that the space limitations of this review would not allow even cursory treatment of all 986 potentially useful, outcome-related articles. The purposes of this review seemed best served by reviewing in detail only those articles classified as A or B in terms of relevance to issues and trends. Although the review is based on those 660 articles, not all of them are cited in the discussion.

Survey Data

Data are reported representing faculty views of the ideal emphasis on various professional outcomes and the extent to which

TABLE A-3
ARTICLE CLASSIFICATION

Category	Year of Publication						
	1979	1980	1981	1982	1983	1984	Total
Outcome Related							
A	20	43	48	38	47	15	211
B	84	105	91	66	71	32	449
C	57	54	70	65	53	27	326
W	93	118	93	86	57	23	470
Nonoutcome Related	242	285	251	279	320	100	1,477
Total	496	605	553	534	548	197	2,933

their programs sponsor educational activities to achieve the outcomes. These data come from a 1985 survey of a national population of faculty in the 540 most comprehensive colleges and universities that offer programs of professional study (Carnegie classifications "research universities," "doctoral universities," and "comprehensive colleges and universities I"). Ten fields were included in the study: architecture, business administration, education, engineering, journalism, law, graduate library science, nursing, pharmacy, and social work (bachelor's and master's programs surveyed separately). Upon finishing this review, analysis of the full survey was not complete.

The sampling unit was the program, and the population included 1,814 programs whose existence was confirmed by college registrars after a mail inquiry and one followup. Although no precise data base identifies all accredited and nonaccredited programs in each field, it is estimated that this survey population included approximately 76 percent of all existing programs in the 10 fields (see table 3 in the text).

The survey sample was selected from separate sampling frames for each field with programs stratified by Carnegie classification, type of control (public or independent), and expected enrollment decline in the state where the institution is located. For fields with fewer than 125 programs in the confirmed national population, all confirmed programs were surveyed; for the more commonly offered programs, a 50 percent random sample was drawn from each stratification cell. Surveys were distributed through program administrators (deans or department chairs), who were asked to respond to the survey and to request responses from faculty who, in their judgment, were most closely involved in and knowledgeable about the preservice professional preparation program. The number of full-time faculty responses requested was proportional to the annual number of program graduates supplied by the college registrar. As student/faculty ratios varied dramatically within fields, different ratios were used for different fields to result in approximately 4.65 responses for the program of mean size in each study field.

A total of 2,230 timely faculty responses from 732 programs in 346 different colleges were obtained after two followups, representing an overall response rate of 69.8 percent of the programs from which response was requested and of 46 percent of the desired faculty sample. The program response rate varied from 56 percent for architecture to over 95 percent for library science and social work. Faculty response rates varied from 31 percent for architecture to 62 percent in nursing and library science. The respondent sample was unbiased with respect to the characteristics of the population surveyed and the stratification parameters (see table A-4).

TABLE A-4
SUMMARY OF SURVEY RESPONSES

Professional Field	Programs Responding		Faculty Responding		Mean Institutional Enrollment	Mean Number of Graduates
	N	%	N	%		
Architecture	36	56.3	90	30.8	18,490	89
Business administration	102	57.6	268	34.6	12,368	376
Education	144	81.8	441	53.9	13,019	233
Engineering	60	61.9	222	46.6	20,365	436
Journalism	66	70.2	207	48.5	20,904	123
Law	59	56.7	185	36.3	18,706	225
Library science	43	95.6	145	62.2	23,069	61
Nursing	96	85.0	356	62.5	14,857	98
Pharmacy	31	73.8	96	50.8	21,491	94
Social work–B.S.W.	69	63.9	145	38.9	15,564	38
Social work–M.S.W.	26	99.9	62	49.2	22,838	116
Total	732	69.8	2,217	46.1		

Within the more extensive survey, faculty respondents were asked to provide, on a seven-point Likert-type scale, their view of the emphasis each of the professional outcomes ideally should receive in their field. The fields with highest and lowest percentages of faculty selecting a rating of "7" on the scale are reported in tables 5 through 15 in the text. In a separate question, faculty were asked to describe briefly specific formal or informal learning experiences directed at various outcomes their program sponsored. The fields in which the highest and lowest percentages of faculty reported such experiences are reported in tables 7 through 15 in the text.

In the survey, faculty also were asked to name one or two journals a faculty member in that profession would be likely to read to be informed about the field's *educational* practice issues (teaching methods, curricular emphasis, competencies expected of new professionals, and so on). Although a tally of this question was available only after the literature review was completed, the data in table 4 show that for most fields the authors had correctly identified the most widely read journals.

A more complete report of the survey results is available from the authors.

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